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# GRADUATE GUIDE

The information in the *Guide* is current as of June 1, 2017. The *Guide* is an official document of record and is reviewed and updated every year. Archived editions from past years are available in the Guide and Catalog

Archive (<http://guide.wisc.edu/archive>). Students are responsible for meeting the academic requirements that were in effect at the time that they matriculated, including satisfactory progress and degree requirements. In situations where academic requirements have changed during a student's time of enrollment, the Graduate School and the academic program, together with the student, may elect to enforce requirements that are in the best interest of the student. University offices can provide current information about possible changes. The *Guide* is published only online; printed copies are not available.

## THE GUIDE

The *Guide* provides an overview of UW–Madison programs that offer graduate degrees, doctoral minors, graduate/professional certificates, and capstone certificates. Some major programs have identified sub-majors, known as named options. These official named options are approved by university governance, and appear on the transcript with degree conferral. Some programs also have unofficial specializations that do not appear on the transcript.

The *Guide* references program-specific policies, rules and regulations as well as Graduate School-level policies regarding admission, coursework, the awarding of degrees and certificates, and the general criteria governing satisfactory progress in a degree program.

## OTHER GRADUATE SCHOOL PUBLICATIONS

The Graduate School's Academic Policies and Procedures (<http://grad.wisc.edu/acadpolicy>) complements Graduate Student Life (<https://grad.wisc.edu/newstudents>) and provides information about Graduate School academic and administrative policies and procedures.

Graduate Student Life (<http://grad.wisc.edu/newstudents>), published by the Graduate School Office Communications Office, offers information about a wide range of topics related to the graduate experience, and advice about the university and community from a student's perspective. It is distributed electronically to all new graduate students before they arrive on campus.

## GRADUATE STUDENT PROFESSIONAL DEVELOPMENT

The Graduate School Office of Professional Development (OPD) coordinates, develops, and promotes learning opportunities to foster the academic, professional, and life skills of graduate students and postdoctoral researchers and scholars.

Professional development topics include Individual Development Plans (<https://grad.wisc.edu/pd/idp>), communication, mentoring, grant writing, dissertation writing, career exploration, job search strategies, and more. OPD collaborates with the Writing Center, Libraries, DoIT Software Training for Students, Delta, career centers, and others to provide a wealth of resources and events tailored to the needs of UW–Madison graduate students.

The office developed and maintains DiscoverPD (<https://my.grad.wisc.edu/DiscoverPD>), an innovative tool for UW–Madison graduate students to advance their academic and professional goals.

DiscoverPD introduces nine areas (or "facets") of professional development, includes a self-assessment, and provides a customized report of areas of strength and weakness. The report comes with recommendations to help graduate students strengthen their ability within each area.

More information on campus resources for student professional development is available at Graduate Student Professional Development (<http://grad.wisc.edu/pd>). Students may keep up-to-date by reading GradConnections (<http://grad.wisc.edu/pd/gradconnections>), the weekly newsletter for graduate students, and bookmarking the Events Calendar (<https://grad.wisc.edu/events>) to keep tabs on upcoming workshops of interest.

## USEFUL LINKS FOR STUDENTS

University websites useful to students are listed below. In addition, most program entries in this catalog provide links to program and department websites.

- Campus and Visitor Relations (<https://info.wisc.edu>)
- Center for Leadership and Involvement (<http://cfli.wisc.edu>)
- Committee on Institutional Cooperation (CIC) (<http://www.btaa.org/splash>)
- Office of Financial Aid (<http://finaid.wisc.edu>)
- Graduate School (<http://grad.wisc.edu>)
- *Graduate School Academic Policies and Procedures* (<http://grad.wisc.edu/acadpolicy>)
- Graduate Student Professional Development (<http://grad.wisc.edu/pd>)
- Graduate Funding Information (<http://grad.wisc.edu/studentfunding/prospective>)
- *Guide to Graduate Student Life* (<http://grad.wisc.edu/newstudents>)
- Information Technology, Division of (DoIT) (<http://it.wisc.edu>)
- International Student Services (ISS) (<http://www.iss.wisc.edu>)
- Libraries (<http://www.library.wisc.edu>)
- McBurney Disability Resource Center (<http://mcburney.wisc.edu>)
- My UW–Madison (<http://my.wisc.edu>)
- Office of the Registrar (<https://registrar.wisc.edu>)
- Division of Student Life (<https://students.wisc.edu>)
- University Health Services (UHS) (<http://www.uhs.wisc.edu>)
- Wisconsin Union (<https://union.wisc.edu>)
- The Writing Center (<http://writing.wisc.edu>)

## AFFIRMATIVE ACTION AND COMPLIANCE STATEMENT

The University of Wisconsin–Madison is committed to providing equal opportunity and equal access and to complying with all applicable federal and state laws and regulations and University of Wisconsin System and university non-discrimination policies and procedures. For information on all covered bases, the names of the Title IX and Americans with Disabilities Act Coordinators, and the processes for how to file a complaint alleging discrimination, please contact the Office of Compliance (<https://compliance.wisc.edu>). The Office of Compliance is located at 361 Bascom Hall, 500 Lincoln Drive, Madison WI 53706 and



can be reached at Voice: 608-265-6018 (relay calls accepted); Fax: 608-263-4725; Email: uwcomplianceoffice@wisc.edu.

The following are the nondiscrimination bases for covering students and applicants for admission to the university; university employees and applicants for employment at the university; and those wishing to take part in university programs and activities, including visitors to campus.

## STUDENTS/EDUCATIONAL PROGRAMS

- age
- ancestry
- color
- creed
- disability
- ethnicity (specifically involving harassment by UW employees)
- gender identity or expression
- marital or parental status
- national origin
- pregnancy
- race
- religion
- retaliation for opposing discrimination, making a complaint of discrimination or taking part in an investigation relating to discrimination
- sex
- sexual orientation
- or any other category protected by law, including physical condition or developmental disability as defined in Wisconsin Statutes§51.01(5).

## EMPLOYEES/APPLICANTS

- age
- ancestry
- arrest record
- color
- conviction record
- creed
- disability
- ethnicity (specifically involving harassment by university employees)
- gender identity or expression
- genetic information including genetic testing
- honesty testing
- marital or parental status
- military service
- national origin
- pregnancy
- race
- religion
- retaliation for opposing discrimination, making a complaint of discrimination or taking part in an investigation relating to discrimination
- sex
- sexual orientation
- use or nonuse of lawful products off the employer's premises during nonworking hours,

- veteran status
- declining to attend a meeting or participate in any communication about religious matters or political matters, or any other category protected by law

## VISITORS AND PROGRAM PARTICIPANTS/UNIVERSITY ACTIVITIES

- age
- ancestry
- color
- creed
- disability
- national origin
- race
- retaliation for making a complaint of discrimination, or taking part in an investigation relating to discrimination, or opposing discrimination
- sex
- sexual orientation

Also covered is any other non-discrimination category that may be subsequently added, even if not included in the above list, as a result of federal or State of Wisconsin court, legislative, or regulatory action, or action taken by UWS or the University.

## INFORMATION FOR STUDENTS WITH DISABILITIES

The University of Wisconsin–Madison is committed to providing equal opportunity and equal access to people with disabilities who are members of the University community. The McBurney Disability Resource Center provides disability-related services and accommodations to undergraduate, graduate, professional, Special, and guest students. The center works closely with students and faculty on the provision of reasonable accommodations to ensure access to the learning environment. Common accommodations include extended time and/or small group environment for exams, class notetakers, sign language interpreting, real time and media captioning, and conversion of printed materials to an accessible format. McBurney staff members also collaborate with students and faculty to determine reasonable flexibility with regard to attendance, participation, and deadlines for disorders that fluctuate in severity over the course of enrollment. The center makes referrals to other campus offices or community resources for nonclassroom accommodations related to housing, transportation, personal care needs, and so on. Students should contact the center upon admission to begin the eligibility for services process. Early notice is essential in order to have accommodations in place prior to the start of the semester. For detailed information, see How to Become a McBurney Client (<http://mcburney.wisc.edu/students/howto.php>).

### McBurney Disability Resource Center

702 West Johnson Street, Suite 2104  
 Madison, WI 53706  
 608-263-2741 (voice)  
 608-225-7956 (text)  
 608-265-2998 (fax)  
[mcburney@studentlife.wisc.edu](mailto:mcburney@studentlife.wisc.edu)  
[www.mcburney.wisc.edu](http://www.mcburney.wisc.edu) (<http://www.mcburney.wisc.edu>)

## ACCREDITATION

The University of Wisconsin–Madison is accredited by the:

Higher Learning Commission (<http://www.hlcommission.org>)  
230 South Lasalle Street, Suite 7-500  
Chicago, IL 60604  
telephone 1-800-621-7440  
[www.hlcommission.org](http://www.hlcommission.org) (<http://www.hlcommission.org>)

UW–Madison, which was first accredited in 1913, was last accredited in 2009, and will go through a reaccreditation process again in 2018–19.

See Mark of Affiliation (<http://guide.wisc.edu/undergraduate>).

**Registration with the Minnesota Office of Higher Education:** The University of Wisconsin–Madison is a public institution registered as a "Private Institution" with the Minnesota Office of Higher Education pursuant to sections 136A.61 to 136A.71. Registration is not an endorsement of the institution. Credits earned at the institution may not transfer to all other institutions.

## ACADEMIC CALENDAR

Establishment of the academic calendar (<https://www.secfac.wisc.edu/academic-calendar.htm>) for the University of Wisconsin–Madison falls within the authority of the faculty as set forth in Faculty Policies and Procedures. Construction of the academic calendar is subject to various rules and guidelines prescribed by the Board of Regents, the Faculty Senate and State of Wisconsin legislation. Approximately every five years, the Faculty Senate approves a new academic calendar which spans a future five-year period. The current calendar was adopted by the Faculty Senate in September 2016.

**The information, policies, and rules contained herein are subject to change.**

## DEGREES/MAJORS

**Explore Graduate Opportunities** (<http://guide.wisc.edu/mas>)

## UW–MADISON GRADUATE SCHOOL

The UW–Madison Graduate School confers the Master of Arts, Master of Science, Master of Accountancy, Master of Business Administration, Master of Music, Master of Engineering, Master of French Studies, Master of International Public Affairs, Master of Music, Master of Public Affairs, Master of Social Work, Master of Fine Arts, Doctor of Audiology, Doctor of Musical Arts, Doctor of Nursing Practice, Doctor of Occupational Therapy, and Doctor of Philosophy. Additionally, several programs that do not award graduate degrees may offer doctoral minors, specialist certificates, graduate/professional certificates, or capstone certificates.

The master's degree is conferred only upon completion of a coherent and focused program of advanced study.

The master of fine arts degree offers superior students advanced training and opportunities for creativity. The program is for the prospective professional artist and teacher in the fine arts at the college level and emphasizes creative work.

The doctor of philosophy, the doctor of nursing practice, the doctor of audiology, the doctor of occupational therapy, and the doctor of musical arts are the highest degrees conferred at UW–Madison. None are

conferred solely as a result of any prescribed period of study, no matter how faithfully pursued. The Ph.D. degree is a research degree and is granted on evidence of general proficiency, distinctive attainment in a special field, and particularly on ability for independent investigation as demonstrated in a dissertation presenting original research or creative scholarship with a high degree of literary skill. The DMA degree is granted on evidence of a high degree of competence in performance, conducting, or composition. The DNP, OTD, and Au.D. degrees are clinical doctorates granted on evidence of clinical knowledge and expertise in their respective disciplinary areas.

The Ph.D., DNP, Au.D., OTD and DMA degree programs must be rationally unified, with courses that must contribute to an organized program of study and research. Courses must be selected from groups embracing one principal subject of concentration called the **major** (see Degrees), and if required, from one or more related fields called the **doctoral minor**. The major field is normally coextensive with the work of a single department or with one of the subjects under which certain programs have been formally arranged. A major may be permitted to extend beyond the above limits with the prior approval of the Dean of the Graduate School. The doctoral minor is designed to represent a coherent body of work, taken as a graduate student, and should not be simply an after-the-fact ratification of a number of courses taken outside the major department.

Graduate School minimum credits and other requirements necessary to earn these degrees are listed in the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) section; each program may set degree requirements and expectations more rigorous than the Graduate School.

## SCHOOLS AND COLLEGES

- College of Agricultural and Life Sciences
- School of Business
- Division of Continuing Studies
- School of Education
- College of Engineering
- Gaylord Nelson for Environmental Studies
- Graduate School
- School of Human Ecology
- Law School
- College of Letters & Science
- School of Medicine and Public Health
- School of Nursing
- School of Pharmacy
- School of Veterinary Medicine

## DISTANCE OR FLEXIBLE PROGRAMS

The university offers several degree and capstone certificate programs that are fully or partially available at a distance or that are flexible to working schedules with evening and/or weekend courses. To learn more about the graduate-level degrees and certificates offered in flexible and online formats, visit the Wisconsin Advance Your Career (<https://advanceyourcareer.wisc.edu>) portal.

## OTHER PROFESSIONAL DEGREES

UW–Madison offers a number of post-baccalaureate professional degrees that are not administered by the Graduate School, but instead are solely supported by their home school.

Doctor of Juridical Science—SJD (<https://law.wisc.edu/grad/prospective/sjd/overview-sjd.html?>)

Doctor of Law—J.D. (<http://law.wisc.edu>)

Doctor of Medicine—M.D. (<http://www.med.wisc.edu/education/md-program/main/276>)

Doctor of Physical Therapy—DPT (<http://ortho.wisc.edu/Home/DoctorOfPhysicalTherapy.aspx>)

Doctor of Pharmacy—Pharm.D. (<https://pharmacy.wisc.edu/programs/pharmd>)

Doctor of Veterinary Medicine—DVM (<http://www.vetmed.wisc.edu/dvm-students>)

Master of Genetic Counseling—MGC (<http://www.med.wisc.edu/education/graduate-programs/genetic-counseling/main/26910>)

Master of Laws—LLM (<https://law.wisc.edu/grad/prospective/llm/overview-llm.html>)

Master of Laws—Legal Institutions—LLM (<https://law.wisc.edu/grad/prospective/llm-li>)

Master of Physician Assistant Studies—P.A. (<http://www.fammed.wisc.edu/pa-program>)

Master of Public Health—MPH (<https://mph.wisc.edu>)

For nontraditional students and working professionals, capstone certificates reflect a focused collection of graduate-level courses approved by the Graduate School. Capstone certificate programs do not lead to the conferral of a degree, but do appear on a student's UW–Madison transcript. Programs offering capstone certificates monitor all application, academic, and satisfactory progress requirements.

Capstone certificate students fall under the campus category of University Special students as these students are not in degree status. Adult Career and Special Student Services (ACSSS) is the admitting and academic dean's office for all University Special students. The academic dean is responsible for issues related to student enrollment and the student's official record, including credit limits, eligibility to continue, disciplinary holds, and withdrawal approval.

The ACSSS dean and student services coordinator work closely with each department's capstone certificate coordinator at each step of the process: advising, admissions, enrollment eligibility, and program completion. Eligibility rules for University Special students apply, including a minimum 2.0 GPA and good academic standing. Each specific capstone certificate has additional criteria for program eligibility, final admission, and progress. Capstone certificates typically follow rules of the Graduate School (<https://grad.wisc.edu/acadpolicy>) (<https://grad.wisc.edu/acadpolicy/#enrollmentrequirements>) for tuition, credit limits, and grading (including no Pass/Fail option).

Once admitted, candidates will receive a formal letter of admission to UW–Madison from Adult Career and Special Student Services along with enrollment instructions and information about tuition and deadlines. The capstone certificate coordinator will send specific information pertaining to enrollment in and completion of the capstone program.

- Actuarial Science, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/actuarial-science-capstone-certificate>)
- Bioinformatics, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/bioinformatics-capstone-certificate>)
- Clinical Nurse Specialist – Adult/Gerontology (<http://guide.wisc.edu/nondegree/capstone/clinical-nurse-specialist-adult-gerontology-capstone-certificate>)
- Clinical Nutrition, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/clinical-nutrition-capstone-certificate>)
- Clinical Nutrition-Dietetic Internship, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/clinical-nutrition-dietetic-internship-capstone-certificate>)
- Clinical and Community Outcomes, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/clinical-community-outcomes-research-capstone-certificate>)
- Communication Sciences and Disorders, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/communication-sciences-disorders-capstone-certificate>)
- Computer Sciences for Professionals, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/computer-sciences-professionals-capstone-certificate>)
- Consumer Health Advocacy, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/consumer-health-advocacy-capstone-certificate>)
- Foundations of Professional Development, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/foundations-professional-development-capstone-certificate>)

## DOCTORAL MINORS

Doctoral minor options are as follows:

- Option A (external): Requires a minimum of 9 credits in a minor program (single disciplinary or multidisciplinary). Fulfillment of this option requires the approval of the minor program.
- Option B (distributed): Requires a minimum of 9 credits in one or more programs forming a coherent topic, and can include course work in the program. Fulfillment of this option requires approval of the major program. See Minors (<http://grad.wisc.edu/acadpolicy/#minors>) in the Graduate School *Academic Policies and Procedures* for minimum course requirements for the minor.

## GRADUATE/PROFESSIONAL CERTIFICATES

### GRADUATE/PROFESSIONAL CERTIFICATES

The university offers several programs of study that may not grant graduate degrees but coordinate teaching and research among scholars active in interrelated disciplines. Graduate/professional certificates are available to degree-seeking graduate and professional students (GRAD, LAW, MED, PHARM, VMED "careers"). There is no formal admission to graduate/professional certificate programs. Programs offering the following certificates monitor all course and satisfactory progress requirements.

### SPECIALIST CERTIFICATES

The Specialist Certificate represents work beyond the master's level. For more information, contact the program.

## CAPSTONE CERTIFICATES

### CAPSTONE CERTIFICATES

Capstone certificates allow students with a bachelor's degree to obtain additional professional skills and certification. Designed

- French Studies at the Graduate Level, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/french-graduate-level-capstone-certificate>)
- Fundamentals of Clinical Research, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/fundamentals-clinical-research-capstone-certificate>)
- Geodesign, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/geodesign-capstone-certificate>)
- Geographic Information Systems, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/geographic-information-systems-capstone-certificate>)
- Global Health, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/global-health-capstone-certificate>)
- Infant, Early Childhood and Family Mental Health, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/infant-early-childhood-family-mental-health-capstone-certificate>)
- International Politics and Practice, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/international-politics-practice-capstone-certificate>)
- Leadership for Population Health Improvement, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/leadership-population-health-improvement-capstone-certificate>)
- Nurse Educator, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/nurse-educator-capstone-certificate>)
- Post-Graduate Psychiatric Nursing, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/post-graduate-psychiatric-nursing-capstone-certificate>)
- Power Conversion and Control, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/power-conversion-control-capstone-certificate>)
- User Experience Design, Capstone Certificate (<http://guide.wisc.edu/nondegree/capstone/user-experience-design-capstone-certificate>)

## ADMISSIONS

### ADMISSIONS AND FINANCIAL AID

The University of Wisconsin–Madison has offered graduate study for more than a century. Its advanced instruction actively involves graduate students in research. The faculty of more than 2,000 distinguished scholars and teachers, supported by an academic staff exceeding 6,000 confers graduate degrees in more than 160 fields of study.

As one of the nation's major research institutions, the university maintains extensive research facilities. More than 40 campus libraries, three museums, and numerous research centers support nearly 7,500 active local, national, and international research projects.

The Graduate School website (<http://grad.wisc.edu>) offers links to admission information, including program profiles and contacts, websites and the online application, funding resources, diversity, graduate student life and other resources.

Deadlines for applications, fellowships and other types of funding vary among programs. Requirements also vary; therefore, it is important to check program websites before applying. All transcripts are sent directly to the program. If applying to more than one program transcripts should be sent to each program. All transcripts become part of the university

files and will not be returned. The application fee is set by the legislature and is nonrefundable.

When the Graduate School receives the application, the data are entered into a campuswide student administration system. The program performs the initial application review, and if desired, makes a positive admission recommendation to the Graduate School. Admission is based on demonstrated scholastic ability, letters of recommendation, the statement of purpose/reasons for graduate study, and in most programs, scores on standardized tests, such as the GRE, TOEFL or IELTS (for international students) and GMAT for Business School applicants. Program requirements may be more rigorous than Graduate School requirements.

## GRADUATE SCHOOL MINIMUM ADMISSION REQUIREMENTS

Upon receipt of a positive admission recommendation from the department, the Graduate School will review the application and make the final admission decision. All applicants must meet the following requirements:

### GRADES

- A minimum undergraduate grade-point average (GPA) of 3.00 (on a 4.00 scale) on the equivalent of the last 60 semester hours (approximately two years of work), or a master's degree with a minimum cumulative GPA of 3.0 (on a 4.00 scale).
- International applicants must have a strong academic performance comparable to a B or above grade-point average. The Graduate School will use the grading scale from the applicant's institution. Applicants should not convert their grades to a 4-point scale.

### DEGREE

- A bachelor's degree from a regionally accredited U.S. institution, or a comparable degree from an international institution is required.
- International applicants must have a degree comparable to an approved U.S. bachelor's degree.
- An international applicant's undergraduate institution should provide an official translation of the applicant's documents. If a translation is not provided, an applicant can have a translation done by the undergraduate institution, or by an official translator. In some countries, these translators are also notaries. Applicants should not submit an evaluation from a credential-evaluation service in lieu of a translation.

### ENGLISH PROFICIENCY

Every applicant whose native language is not English, or whose undergraduate instruction was not in English, must provide an English-proficiency test score. Puerto Rican residents are not required by the Graduate School to provide an English-proficiency test score, but programs may require one. The required minimum scores are:

- Test of English as a Foreign Language (TOEFL): 80 for Internet (iBT) and 550 for paper test
- Michigan English Language Assessment (MELAB): 77
- International English Language Testing Services (IELTS): 6

An applicant whose TOEFL Internet-based test (iBT) score is below 92; TOEFL paper-based test score below 580; IELTS score below 7; or MELAB below 82 must take an English-assessment test upon arrival. Depending on the score, an applicant may need to register for a recommended

English as a Second Language (ESL) course in the first semester he or she is enrolled.

## INTERNATIONAL FINANCIAL INFORMATION

International applicants are required to have adequate financial resources to cover expenses for the duration of their studies at UW–Madison. For more information see International Applicant Financial Information (<http://grad.wisc.edu/admissions/internationalfinancial>). Do not send financial statements until requested by the Graduate School. This will occur after the program has made a positive admission recommendation.

## ADMISSION CATEGORIES

### FULL STANDING

Applicants admitted with full graduate standing must have satisfied the minimum Graduate School requirements and the requirements of the program in which they plan to enroll. A program may justify a recommendation of full standing to the Graduate School even though the applicant does not meet the minimum requirements. The Graduate School makes the final admission decision based on the program's recommendation.

### MASTER'S DEGREE ONLY

The program may decide to recommend an applicant for the master's degree only. The program is responsible for monitoring this decision.

### ADMISSION WITH DEFICIENCIES

An applicant may be admitted with deficiencies on program recommendation. Applicants normally have at least 12 credits of academic work in the field of proposed graduate study or, in special cases, 12 credits of academic work in related fields approved by the department. Students are ordinarily expected to make up deficiencies by the end of the first full semester of enrollment. The Graduate School makes the final admission decision based on the program's recommendation. The program is responsible for monitoring the deficiencies.

### ADMISSION ON PROBATION

An applicant who does not meet Graduate School minimum GPA or institution/degree requirements may be admitted on probation, provided other substantial evidence of capacity to do satisfactory graduate work is presented. The Graduate School makes the final admission decision based on the program's recommendation. If the applicant is admitted, the Graduate School will monitor the program review of probation and automatically end probationary status if the student meets the stipulated requirements. Failure to meet the requirements may result in the student being dropped from graduate school. It is the program's responsibility to inform students who have been admitted on probation.

### PROBATION WITH DEFICIENCIES

An applicant may be admitted on probation with deficiencies. The program is responsible for monitoring the deficiencies, and the Graduate School will monitor the program review of probation.

### PROBATION, NO GRADE BELOW B

Applicants may be admitted on probation with the stipulation that they receive no grade below B in the first semester as a UW–Madison graduate student. The Graduate School will monitor the program review of probation.

## PROBATION, FIRST-SEMESTER GPA SPECIFIED

Applicants may be admitted on probation with the stipulation that they receive a specified first-semester GPA. The Graduate School will monitor the program review of probation.

## UNIVERSITY SPECIAL STUDENT (NONDEGREE CANDIDATE)

In some cases, strong performance as a University Special student will be considered as evidence leading to favorable action on a request for admission. After admission to a graduate program, the student's program may decide to accept up to 15 credits earned as a University Special student as fulfillment of the minimum graduate residence, graduate degree, or doctoral minor credit requirements on occasion as an exception (on a case-by-case basis). In all these cases, the student would have to pay the difference in tuition for the terms in question. UW–Madison course work taken as a University Special student would not be allowed to count toward the 50% graduate course work minimum unless taken at the 700 level or above. This work will not appear on the graduate career portion of the UW–Madison transcript nor count towards the graduate career GPA. For more information, contact:

Adult Career and Special Student Services Center  
21 North Park Street, 7th floor  
Madison, WI 53715  
608-263-6960  
advising@dcs.wisc.edu  
continuingstudies.wisc.edu/advising/ (<http://www.continuingstudies.wisc.edu/advising>)

## DOUBLE DEGREES (2 DEGREES, 2 MAJORS)

Double degrees are two same-level (master's or doctoral) degrees from two separate graduate programs and can be earned at either the master's or doctoral level. A student completing a double degree earns two degrees (two programs), and receives two diplomas. The student has two advisors and two separate committees, and completes two theses (master's) or dissertations (Ph.D.). Students may apply for an additional program at the time of original application, add a program at any time during enrollment, or reapply and pursue a second degree after completion of the first. Please review the Graduate School's *Academic Policies and Procedures* (<https://grad.wisc.edu/acadpolicy/#61>) for the most up-to-date information about double degrees.

## DUAL DEGREES (2 DEGREES FROM 2 STUDENT CAREERS, SUCH AS 1 FROM THE GRADUATE SCHOOL AND 1 FROM A PROFESSIONAL SCHOOL)

A dual degree is two degrees, one of which is granted in a graduate program, and the other in another career (e.g., professional degrees like M.D., J.D., DVM, D.Pharm., MPH. or undergraduate degrees at UW–Madison). To receive a dual degree students must be admitted to both programs and complete the specific degree requirements for each school (including the Graduate School minimum credit requirement for the graduate degree). Please review the Graduate School's *Academic Policies and Procedures* for the most up-to-date information about dual degrees.

## JOINT DEGREES (1 DEGREE, 2 MAJORS)

A joint degree consists of one graduate degree with two programs. A student completing a joint degree writes one thesis or dissertation and receives one diploma. Students can earn a joint master's or a joint doctorate. Such degrees are relatively rare. To receive a joint degree students must be admitted to both programs and submit an approved joint degree proposal to the Graduate School for review no later than

the beginning of their second year of graduate study. The proposal must outline how the requirements for both programs will be met. Please review the Graduate School's *Academic Policies and Procedures* (<https://grad.wisc.edu/acadpolicy>) for the most up-to-date information about joint degrees.

## SPECIAL GRADUATE COMMITTEE DEGREES

Special graduate committee degrees are one-of-a-kind master's or doctoral degrees built around unique needs of individual students that cannot be satisfied by approved programs (i.e., by existing program/minor combinations, joint degrees, distributed minors, etc.) and may permit individual degrees in new and emerging fields or combinations of disciplines. Prospective students who may have an interest in a special graduate committee degree should apply to the degree program that is closest to their program interest and attend classes before a proposal for a special graduate committee degree will be considered by the Graduate School. The student's advisor authors and submits the special graduate committee degree proposal on behalf of the student as early in the student's program as possible. Please review the Graduate School's *Academic Policies and Procedures* (<https://grad.wisc.edu/acadpolicy/#161>) for the most up-to-date information about special graduate committee degrees.

## FACULTY ADMISSION

A UW–Madison faculty member may pursue a graduate degree provided arrangements have been made to avoid conflicts of interest and time commitment. Faculty should refer to section 8.03 of *Faculty Policies and Procedures* for specific regulations.

## PREVIOUSLY ENROLLED GRADUATE STUDENTS

Previously enrolled graduate students must reapply for admission to the Graduate School if they wish to resume studies after an absence of a semester or more (not including summer session). The readmission procedure assures the Graduate School that a student is in good standing with his/her academic program and activates the student's registration eligibility. Procedures and more information for returning to Graduate School are available at [grad.wisc.edu/admissions/previouslyenrolled/](http://grad.wisc.edu/admissions/previouslyenrolled/) (<http://grad.wisc.edu/admissions/previouslyenrolled/>).

The Graduate School recommends that students contact the program when they desire a leave; some programs have strict leave-of-absence policies.

## FINANCIAL SUPPORT

Financial support is available to many graduate students on campus and comes in the form of Graduate Assistantships (e.g., Teaching, Project, or Research Assistantships), Fellowships, and Traineeships. The best source of information about these types of financial support is the faculty and staff in academic programs. Decisions about most graduate assistantships, fellowships, and traineeships are made at the program level; however, some cross-campus graduate assistantships are listed at the main Student Job Center. The Graduate School's Office of Fellowships and Funding Resources (OFFR) provides general information and direction to students about funding opportunities on and off campus.

Graduate School Office of Fellowships and Funding Resources  
231 Bascom Hall, 500 Lincoln Drive  
Madison, WI 53706-1380  
608-265-5522; 608-262-9597  
[grad.wisc.edu/studentfunding/](http://grad.wisc.edu/studentfunding/) (<http://grad.wisc.edu/studentfunding/>)

## ASSISTANTSHIPS

Student assistants are enrolled graduate students. There are several general categories of student assistant appointments at UW–Madison.

### TEACHING ASSISTANTS (TA)

Teaching assistantships provide financial support to graduate students as well as opportunities for acquiring valuable teaching experience. A teaching assistant is a graduate student enrolled in the University of Wisconsin–Madison who is regularly assigned to teaching under the supervision of a faculty member or academic staff employee.

Teaching assistants who are awarded a minimum appointment of 33.33% receive full tuition remission and are eligible for comprehensive health insurance benefits. They are, however, still responsible for paying segregated fees.

For more information, visit *Types of Funding Available* (<https://grad.wisc.edu/studentfunding/types>) and reference *Academic Policies and Procedures* (<https://grad.wisc.edu/acadpolicy/#projectassistant>).

### PROGRAM ASSISTANTS (PA)

A program assistant or project assistant (PA) is a graduate student enrolled in the University of Wisconsin System who is assigned to conduct research, training, administrative responsibilities, under the supervision of a faculty or academic staff member, primarily for the benefit of the university.

Program/project assistants are included in a labor agreement between the state of Wisconsin and the Teaching Assistants Association.

Program/project assistants who are awarded a minimum appointment of 33.33% receive full tuition remission and are eligible for comprehensive health insurance benefits. They are, however, still responsible for paying segregated fees.

For more information, visit *Types of Funding Available* (<https://grad.wisc.edu/studentfunding/types>) and reference *Academic Policies and Procedures* (<https://grad.wisc.edu/acadpolicy/#projectassistant>).

### RESEARCH ASSISTANTS (RA)

A research assistant (RA) must be a graduate student working toward a master's or Ph.D. degree. The main function of a research assistantship is to further the education and training of the student, through the individual's course of study and research directly applicable to his/her thesis or dissertation.

Research assistants who are awarded a minimum appointment of 33.33% receive full tuition remission and are eligible for comprehensive health insurance benefits. They are, however, still responsible for paying segregated fees.

For more information, visit *Types of Funding Available* (<https://grad.wisc.edu/studentfunding/types>) and reference *Academic Policies and Procedures* (<https://grad.wisc.edu/acadpolicy/#researchassistant>).

## FELLOWSHIPS ADMINISTERED BY THE GRADUATE SCHOOL

The Graduate School administers a number of university-funded fellowships for different purposes and in different disciplines. For example, some fellowships are awarded by division, while others are offered by school or college. Applicants do not apply directly to the

Graduate School for fellowship support. Academic programs nominate their most competitive students for these university-wide awards.

Fellowships may be awarded for a semester, academic (nine-month), or annual (12-month) tenure. Stipends vary according to the type of award. In 2014-2015, fellowship awards ranged from \$6,455 for summer support up to \$25,820 for 12 months. These awards provide for payment of tuition and fees and include eligibility for comprehensive health insurance benefits.

Federal or national fellowships currently administered by the Graduate School include: Ford Foundation Predoctoral and Dissertation Fellowships, National Physical Science Consortium (NPSC) Fellowships, National Science Foundation (NSF) Graduate Fellowships, Charlotte Newcombe Fellowships, Spencer Dissertation Fellowships, CIC–Smithsonian Institution Fellowships, Soil Science Research Council (SSRC) Fellowships, Mellon-Council for European Studies (CES) Fellowships and ACLS/Mellon Dissertation Completion Fellowships. These programs require direct application by the student to the agency and generally have early fall deadlines.

## FELLOWSHIPS FOR INTERNATIONAL TRAVEL, RESEARCH, AND STUDY

The International Fellowships Office, a unit of the International Institute, serves as a resource center and provides information and support to faculty, students, and staff interested in identifying international research grants, scholarships, and other funding opportunities. The International Fellowships Office also manages and coordinates a number of international fellowship competitions for UW–Madison faculty and students. Contact the International Institute at:

328 Ingraham Hall  
(608) 262 9632  
[intl-institute.wisc.edu/funding/students.htm](http://intl-institute.wisc.edu/funding/students.htm) (<http://fellowships.international.wisc.edu>).

## COLLEGE AND PROGRAM TRAINEESHIPS AND FELLOWSHIPS

Many colleges and programs have fellowships, scholarships, and traineeship awards for students at all stages of graduate study. Awards are made available from federal training programs, research grants, gifts and trusts, and special program funds. Information on these awards is available from the program.

## OFFICE OF STUDENT FINANCIAL AID

The Office of Student Financial Aid assists students (U.S. citizens and Permanent Residents) whose personal and family resources are not adequate to cover the expenses involved in attending UW–Madison. For more information about processing financial aid forms to determine eligibility, part-time employment or information about scholarships and more, see the Office of Student Financial Aid website (<http://finaid.wisc.edu>).

Effective July 1, 2012, graduate students are no longer eligible for Federal Direct Subsidized loans. For more information about changes to federal direct loans for graduate students check [here](#).

Counseling is available to students who would like more information about financial assistance, debt management, or personal budgeting.

Office of Student Financial Aid  
333 East Campus Mall, #9701

608/262-3060  
[finaid@finaid.wisc.edu](mailto:finaid@finaid.wisc.edu)  
[www.finaid.wisc.edu](http://www.finaid.wisc.edu) (<http://www.finaid.wisc.edu>)

## COUNCIL OF GRADUATE SCHOOLS POLICY RESOLUTION

Acceptance of an offer of financial aid (such as graduate scholarship, fellowship, traineeship, or assistantship) for the next academic year by an actual or prospective graduate student completes an agreement (based on a Resolution of the Council of Graduate Schools) which both the student and graduate school expect to honor. In those instances in which the student accepts the offer before April 15 and subsequently desires to withdraw, the student may submit in writing a resignation of the appointment at any time through April 15.

However, an acceptance given or left in force after April 15 commits the student not to accept another offer without first obtaining a written release from the institution to which a commitment has been made. Similarly, an offer by an institution after April 15 is conditional on presentation by the student of the written release from any previously accepted offer. It is further agreed by the institutions and organizations subscribing to the above Resolution that a copy of this Resolution should accompany every scholarship, fellowship, traineeship, and assistantship offer.

## POLICIES AND REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS

The Graduate School sets minimum standards that must be met by all graduate students in the university. Continuation in the Graduate School is at the discretion of the major program, the Graduate School, and the major professor. The table of Graduate School Minimum Degree Requirements and Satisfactory Progress includes the minimum credits required for each type of degree program.

The requirements of most programs exceed the Graduate School minimum criteria. These additional requirements, referred to as Minimum Degree Requirements and Satisfactory Progress, are described in each major program entry in this catalog. Students are responsible for obtaining specific degree requirements from the program. Many programs publish a graduate student handbook, which provides details about graduate study, admissions criteria, faculty interests, and the curriculum.

### GRADUATE SCHOOL MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

Schools/colleges, departments and programs may set more rigorous expectations and requirements than the Graduate School.

#### MASTER'S DEGREES

M.A., M.S., M.Acc., MBA, M.M., M.Eng., MFS, MIPA, MPA, MSW

**Minimum Graduate Degree Credit Requirement**<sup>1</sup>  
30 credits

**Minimum Graduate Residence Credit Requirement**<sup>1</sup>  
16 credits

**Minimum Graduate Coursework (50%) Requirement**<sup>1</sup>

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

**Prior Coursework Requirements: Graduate Work from Other Institutions**<sup>1</sup>

For well-prepared advanced students, a student's program may decide to accept prior graduate coursework from other institutions. This coursework does not appear on a UW–Madison transcript nor count toward graduate career GPA. The Graduate School's minimum graduate residence requirement can be satisfied only with courses taken as a graduate student at UW–Madison. The only exception is graduate-level coursework take as a CIC Traveling Scholar.

**Prior Coursework Requirements: UW–Madison Undergraduate**<sup>1</sup>

For well-prepared advanced students, a student's program may decide to accept up to 7 credits numbered 300 or above of required or elective courses from the undergraduate work completed at UW–Madison toward fulfillment of minimum degree and minor credit requirements. However, this work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. This work will not appear on the graduate career portion of UW–Madison transcript nor count toward the graduate career GPA.

The Graduate School's minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison.

**Prior Coursework Requirements: UW–Madison University Special**<sup>1</sup>

After admission to a graduate program, the student's program may decide to accept up to fifteen University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. This work will not appear on the graduate career portion of UW–Madison transcript nor count toward the graduate career GPA.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

**Credits per Term Allowed**<sup>1</sup>

Up to 15 credits

**Overall Graduate GPA Requirement**<sup>1</sup>

3.00

**Other Grade Requirements**<sup>1</sup>

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

**Probation Policy**<sup>1</sup>

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300

or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

**Advisor / Committee**

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

**Assessment and Examinations**<sup>1</sup>

Requirements determined by the program.

**Time Constraints**<sup>1</sup>

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

**Language Requirements**<sup>1</sup>

Each program sets its own language requirements. Some programs require competence in one or more languages before students can take preliminary examinations.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

**MASTER OF FINE ARTS DEGREE OR SPECIALIST CERTIFICATE**

MFA, Specialist Certificate

**Minimum Graduate Degree Credit Requirement**<sup>1</sup>

42 credits

**Minimum Graduate Residence Credit Requirement**<sup>1</sup>

24 credits

**Minimum Graduate Coursework (50%) Requirement**<sup>1</sup>

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide ([https://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.uP?pCm=view&pP\\_action=advancedSearch&pP\\_form-submit=true](https://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.uP?pCm=view&pP_action=advancedSearch&pP_form-submit=true)).



### **Prior Coursework Requirements: Graduate Work from Other Institutions**<sup>1</sup>

For well-prepared advanced students, a student's program may decide to accept prior graduate coursework from other institutions. This coursework does not appear on a UW–Madison transcript nor count toward graduate career GPA. The Graduate School's minimum graduate residence requirement can be satisfied only with courses taken as a graduate student at UW–Madison. The only exception is graduate-level coursework take as a CIC Traveling Scholar.

### **Prior Coursework Requirements: UW–Madison Undergraduate**<sup>1</sup>

For well-prepared advanced students, a student's program may decide to accept up to 7 credits numbered 300 or above of required or elective courses from the undergraduate work completed at UW–Madison toward fulfillment of minimum degree and minor credit requirements. However, this work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. This work will not appear on the graduate career portion of UW–Madison transcript nor count toward the graduate career GPA.

The Graduate School's minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison.

### **Prior Coursework Requirements: UW–Madison University Special**<sup>1</sup>

After admission to a graduate program, the student's program may decide to accept up to fifteen University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. This work will not appear on the graduate career portion of UW–Madison transcript nor count toward the graduate career GPA.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

### **Credits per Term Allowed**<sup>1</sup>

Up to 15 credits

### **Overall Graduate GPA Requirement**<sup>1</sup>

3.00

### **Other Grade Requirements**<sup>1</sup>

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

### **Probation Policy**<sup>1</sup>

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

### **Advisor**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

### **Assessment and Examinations**<sup>1</sup>

Requirements determined by the program.

### **Time Constraints**<sup>1</sup>

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

### **Language Requirements**<sup>1</sup>

Each program sets its own language requirements. Some programs require competence in one or more languages before students can take preliminary examinations.

For more information, please consult the Graduate School Academic Policies and Procedures. (<https://grad.wisc.edu/acadpolicy>)

## **DOCTORAL DEGREES**

Au.D., DMA, DNP, OTD, Ph.D.

### **Minimum Graduate Degree Credit Requirement**<sup>1</sup>

51 credits

### **Minimum Graduate Residence Credit Requirement**<sup>1</sup>

32 credits

### **Minimum Graduate Coursework (50%) Requirement**<sup>1</sup>

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide ([https://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.u?pCm=view&pP\\_action=advancedSearch&pP\\_form-submit=true](https://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.u?pCm=view&pP_action=advancedSearch&pP_form-submit=true)).

### **Prior Coursework Requirements: Graduate Work from Other Institutions**<sup>1</sup>

For well-prepared advanced students, a student's program may decide to accept prior graduate coursework from other institutions. This coursework does not appear on a UW–Madison transcript nor count toward graduate career GPA. The Graduate School's minimum graduate residence requirement can be satisfied only with courses taken as a

graduate student at UW–Madison. The only exception is graduate-level coursework take as a CIC Traveling Scholar.

### **Prior Coursework Requirements: UW–Madison Undergraduate**<sup>1</sup>

For well-prepared advanced students, a student's program may decide to accept up to 7 credits numbered 300 or above of required or elective courses from the undergraduate work completed at UW–Madison toward fulfillment of minimum degree and minor credit requirements. However, this work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. This work will not appear on the graduate career portion of UW–Madison transcript nor count toward the graduate career GPA. The Graduate School's minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison.

### **Prior Coursework Requirements: UW–Madison University Special**<sup>1</sup>

After admission to a graduate program, the student's program may decide to accept up to fifteen University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. This work will not appear on the graduate career portion of UW–Madison transcript nor count toward the graduate career GPA.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

### **Credits per Term Allowed**<sup>1</sup>

Up to 15 credits

### **Doctoral Minor/Breadth Requirements**<sup>1</sup>

The Graduate School requires doctoral programs to have a doctoral minor requirement to achieve breadth. Only those doctoral programs which have an accepted minor opt-out request on file may excuse their students from the doctoral minor requirement with alternate paths to breadth.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

### **Overall Graduate GPA Requirement**<sup>1</sup>

3.00

### **Other Grade Requirements**<sup>1</sup>

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

### **Probation Policy**<sup>1</sup>

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

### **Advisor**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

### **Assessment and Examinations**<sup>1</sup>

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required. Additional requirements are determined by the program.<sup>2</sup>

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

### **Time Constraints**<sup>1</sup>

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

### **Language Requirements**<sup>1</sup>

Each program sets its own language requirements. Some programs require competence in one or more languages before students can take preliminary examinations.

For more information, please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

<sup>1</sup> Schools/colleges, departments, and programs may set more rigorous expectations and requirements than the Graduate School.

<sup>2</sup> References to preliminary/oral examinations and dissertations do not apply to clinical doctorate degrees (such as Au.D., DNP). Consult the program for specific requirements.

## ACADEMIC CALENDAR

### ACADEMIC CALENDAR

Establishment of the academic calendar (<https://www.secfac.wisc.edu/academic-calendar.htm>) for the University of Wisconsin–Madison falls within the authority of the faculty as set forth in Faculty Policies and

Procedures. Construction of the academic calendar is subject to various rules and guidelines prescribed by the Board of Regents, the Faculty Senate and State of Wisconsin legislation. Approximately every five years, the Faculty Senate approves a new academic calendar which spans a future five-year period.

The current calendar was adopted by the Faculty Senate in September 2016.

# ACCOUNTING AND INFORMATION SYSTEMS

**Administrative Unit:** Accounting and Information Systems

**College/School:** School of Business

**Admitting Plans:** M.Acc.

**Degrees Offered:** M.Acc.

**Named Options:** Tax (M.Acc.)

The master of accountancy (M.Acc.) degree is a two-year (54-credit) program designed for students with a bachelor degree in any major. Students build core accounting competencies in the first academic year and are then encouraged to pursue a paid internship during the summer between the first and second academic years. Students enhance their studies in the second academic year with advanced courses in accounting and other business disciplines. The degree helps students develop strong technical and professional accounting skills that qualify them to sit for the CPA exam. Careers as professional accountants in public accounting, financial institutions, government, industry, or nonprofit organizations are possible upon graduation. For additional information see the program website (<http://bus.wisc.edu/degrees-programs/msmacc/gmacc>).

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Business: Accounting, M.Acc. (p. 20)

## PEOPLE

**Faculty:** Professors Warfield (chair), Covaleski, Johnstone, Matsumura, Mayhew, Nair, Wild; Associate Professor Laplante; Assistant Professors Allee, Barr-Pulliam, Gaertner, Griffith, Lynch, Steele, Thomas

## BUSINESS: ACCOUNTING, M.ACC.

### MASTER'S PROGRAMS IN ACCOUNTING

The state of Wisconsin and most other states have passed legislation mandating that candidates who would like to earn their CPA license must have completed a 150-credit-hour program including at least the equivalent of an undergraduate major in accounting. Advanced degree options for completing these requirements exist at the University of Wisconsin–Madison. They are:

1. The IMAcc program in accounting, which leads to a BBA (Bachelor of Business Administration) degree with an accounting major and a Master of Accountancy degree. The BBA is 120 credits and the MAcc is 30 credits in this program. Students who are majoring in accounting apply for admission to this program during the junior year. Those who are admitted to the traditional IMAcc program must complete a required internship during the spring semester of the senior year (the program does offer some flexibility with the timing of the internship, as needed.) Students are encouraged to take the GMAT exam during the summer after their junior year.

2. Any undergraduate degree with an MAcc degree. The graduate-only master's degree program (GMAcc) does not require an undergraduate major in accounting or in business. There are 54 credits in this program, completed over two years. Students admitted to this program can complete an internship during the summer between the first and second years. The GMAT exam is required for admission.

Students can also satisfy the 150 credit hour requirement by completing the BBA degree with a major in accounting and 30 additional college credits in any area, including a second undergraduate major, or by completing a BBA degree with a major in accounting and an MBA (Master of Business Administration) degree. There is no accounting specialization track in the MBA, so graduate students must major in another area of business. Students who choose to achieve the 150-credit hour requirements without pursuing a graduate degree are strongly encouraged to review the CPA education requirements of the state in which they plan to be licensed. Many states dictate the number and type of accounting credits required to become CPA eligible. Please consult the Accounting website (<https://wsb.wisc.edu/programs-degrees/macc>) for additional information.

## REQUIREMENTS

M.Acc. students seek advanced preparation for careers in various aspects of accounting. The degree stresses in-depth study of accounting theory, auditing, taxation, information systems, applications, policy, and decision making. The program can be undertaken by students possessing an undergraduate accounting degree from UW–Madison or an undergraduate accounting degree in a non-accounting field from any school.

The first year of the M.Acc. program emphasizes accounting and core business knowledge necessary to work in the accounting profession.

The first-year curriculum is as follows (24 total credits).

Students are encouraged to complete a paid internship during the summer between the first and second year of the program. The second year of the program is designed to build on the internship experience through in-depth study of accounting issues. The second-year curriculum for students pursuing the standard M.Acc. plan is as follows (30 total credits).

The M.Acc. program requires a minimum of 54 credits over two years.

The second year also provides students with some flexibility to promote breadth of knowledge across a number of business disciplines.

Code	Title	Credits
<b>First Year</b>		
<i>Fall</i>		
ACCT I S 340	Accounting Systems	3
ACCT I S 620	Fundamentals of Taxation	3
ACCT I S 701	Financial Reporting I	3
ACCT I S 710	Managerial Accounting	3
<i>Spring</i>		
ACCT I S 630	Audit and Assurance Services	3
ACCT I S 702	Financial Reporting II	3
GEN BUS 301	Business Law	3
	Business Elective	3
<b>Second Year</b>		

Select a minimum of 4 from the following: 12

ACCT I S 603	Financial Statement Analysis
ACCT I S 621	Corporate and Advanced Taxation
ACCT I S 730	Advanced Assurance Services
ACCT I S 706	Advanced Financial Reporting
ACCT I S 770	Seminar in Financial Reporting Theory
ACCT I S 771	Seminar in Strategic Cost Management and Performance Measurement
ACCT I S 765	Contemporary Topics

Complete a minimum of four and a maximum of six elective graduate courses 12-18

Total Credits 48-54

## EMPHASIS IN TAXATION

The master of accountancy degree has an available named option in taxation, which is designed for students preparing for a career in tax. Only students admitted to the M.Acc. program are eligible for the named option. The taxation program stresses in-depth study of tax law in a variety of areas, including business tax, individual and estate tax planning, multijurisdictional tax issues, and tax administration. The courses for the M.Acc.: tax named option are closely integrated with law school tax offerings and in some cases, are cross-listed with the law school. In addition, the M.Acc.: tax degree named option requires additional courses in auditing, financial reporting theory, or strategic cost management.

The second-year curriculum for students who wish to pursue an emphasis in taxation includes the following courses:

Code	Title	Credits
ACCT I S 706	Advanced Financial Reporting	3
ACCT I S 621	Corporate and Advanced Taxation	3
ACCT I S 724	Research and Administrative Issues in Taxation	3
ACCT I S 772	Seminar in Current Taxation Topics	3
ACCT I S 722	Taxation of Pass-Through Entities	3
ACCT I S 765	Contemporary Topics	1-4
ACCT I S 725	Taxation of Cross-Jurisdictional Transactions	3

Students pursuing the emphasis in taxation must also complete a minimum of two courses from the standard M.Acc. plan listed above along with one business elective course.

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.Acc., with available named option in Tax

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

24 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher, or courses numbered 300–699 that are specifically designed for graduate students in a graduate program: ACCT I S 340 Accounting Systems, ACCT I S 603 Financial Statement Analysis, ACCT I S 620 Fundamentals of Taxation, ACCT I S 621 Corporate and Advanced Taxation, ACCT I S 630 Audit and Assurance Services, ACCT I S 730 Advanced Assurance Services.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits of graduate coursework from other institutions are allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Up to 6 credits from courses numbered 300 or above will be allowed to apply toward the minimum graduate degree credit requirement. Courses numbered 700 or above will be allowed to apply toward the minimum graduate coursework requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No credits from the UW–Madison University Special student career are allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits<sup>1</sup>

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

<sup>1</sup> Full-time MBA students may be allowed to enroll in up to 18 credits per term in the 2016–2017 academic year. Contact the Wisconsin School of Business for more information.

## ADMISSIONS

The admissions process begins during December each year for the following fall semester admission. To apply for the M.Acc. program, students will have access to complete an online application through the School of Business online application (<https://admissions.bus.wisc.edu>) system. The M.Acc. program does not require previous work experience.

All applicants are required to have two recommendations completed via the online application system. In addition, applicants must submit a GMAT score to be considered for admission. The Wisconsin School of Business GMAT code is 79K-2S-23. The school does not share minimum GMAT score requirements. GRE scores will **not** be accepted in lieu of GMAT scores.

A Test of English as a Foreign Language is required for applicants whose native language is not English or whose full undergraduate instruction was not in English. Applicants who completed three or more years in an institution where the primary mode of instruction was English do not need to complete this requirement and may request a waiver on the application.

Students should direct the Educational Testing Service to forward their test results, taken within two years of the intended start term, to the University of Wisconsin–Madison (institution code: 1846). A minimum TOEFL score of 104 is required for consideration of admission into the program. International Financial Statements are only required of students **admitted** to the program.

It is not necessary to send official transcripts if applicants are unable to scan and upload transcripts to the online system. Applicants later admitted to the program will be asked to send the official transcripts.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will understand the conceptual and technical knowledge foundations of financial accounting, managerial accounting, taxation, business law, and auditing.
- Students will apply Generally Accepted Accounting Principles (GAAP) (and relevant assumptions, principles, and constraints) to prepare financial statements.
- Students will understand that management accounting and control systems, providing financial and nonfinancial performance information, are integral to the successful design and implementation of an organizational strategy.
- Students will interpret and validate business events and transactions through the lens of business processes and systems.
- Students will demonstrate technical competence in income taxation of individuals, partnerships, corporations, and international organizations.
- Students will identify the legal implications of their choices and how the law impacts their interactions with others in a business setting.

### PROFESSIONAL CONDUCT

- Graduates will understand how earning trust and demonstrating integrity as successful accounting professionals impacts businesses, contracts, and capital markets, as well as society at large.
- Graduates will understand that leadership in the field of accounting is the consistent display and communication of respect, trust, expertise and adaptability within various business relationships and contexts.

### ADDITIONAL LEARNING GOALS

- Students will explain how to complete an audit from beginning to end, applying auditing standards, assessing risk, and gathering evidence.
- Students will engage in effective written communication practices by crafting professional memos and reports that integrate research and analysis skills, technical information, and expert writing proficiency.
- Students will understand how accounting is a global practice requiring knowledge of national and international standards, the examination of sociocultural impacts within business contexts, and the ability to leverage the advantages that diversity brings to an organization.

## PEOPLE

**Faculty:** Professors Warfield (chair), Covaleski, Johnstone, Matsumura, Mayhew, Nair, Wild; Associate Professor Laplante; Assistant Professors Allee, Barr-Pulliam, Gaertner, Griffith, Lynch, Steele, Thomas

## AFRICAN CULTURAL STUDIES

**Administrative Unit:** African Cultural Studies

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A., Ph.D.

**Minors and Certificates:** Doctoral Minor

**Specializations:** Pedagogy track

The mission of the Department of African Cultural Studies is to provide research and teaching in the languages and expressive cultures of Africa and Africans around the world.

The department is the only one of its kind in the United States. For those learning to conduct research in African expressive cultures, it offers curricula leading to both the master of arts degree and the doctor of philosophy degree. For those learning to teach African languages, it offers a terminal master of arts degree with an emphasis on pedagogy. Its students come from all over the world, including many African countries.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- African Languages and Literature, Doctoral Minor (p. 23)
- African Languages and Literature, M.A. (p. 23)
- African Languages and Literature, Ph.D. (p. 26)

### PEOPLE

Professors Cowell (Arabic language, linguistics, literature, and culture), Fair (media studies, popular culture, conflict and post-conflict studies), Olaniyan (African and African diaspora literature, literary theory, popular culture), Radano (U.S. and global black music, African musical diaspora, cultural theory), Schatzberg (African popular culture, African soccer, African political thought), Songolo (African and Francophone literatures, African and Francophone cinema, literary theory); Associate Professors El-Nossery (North African Middle Eastern Literatures, women's writing, visual studies), Thompson (linguistic and literary ethnography, critical discourse analysis, less commonly taught language pedagogy); Assistant Professors Brown (African screen media, African literature, literary theory), England (Classical Arabic poetry and prose, Modern Arabic literature), Nimis (Francophone Africa, Lingala language and popular music, the Global South), Sajjani (Global HipHop studies, Africana critical theory, socio-political thought and social justice).

For more information about faculty research interests, see their website (<https://african.wisc.edu/people>).

### AFRICAN LANGUAGES AND LITERATURE, DOCTORAL MINOR

Students pursuing a Ph.D. in other departments may obtain a doctoral minor in African languages and literature. The requirements are:

- At least 9 credits in African language and literature at the graduate level, as determined by the program.

- Reading proficiency in an African language.
- GPA of 3.5 or better in the courses taken for the minor field.

### ADMISSIONS

Applicants should have a minimum undergraduate grade point average (GPA) of 3.0 (out of a possible 4.0), though special cases may be considered for probationary admission. In addition to the online application, the department requires transcripts of all previous university studies, a statement of research interests showing how these relate to the department's areas of expertise, and three letters of recommendation. Graduate Record Exam (GRE) scores are needed for fellowship applicants, but are not otherwise required for admission. There is no application deadline, but it is recommended that materials be submitted as early as possible before the intended date of entry.

The deadline to apply and be considered for funding is November 15.

Admitted applicants who are judged by the department to have insufficient background in African cultural studies may be assigned course work in addition to the regular required coursework.

### PEOPLE

Professors Cowell (Arabic language, linguistics, literature, and culture), Fair (media studies, popular culture, conflict and post-conflict studies), Olaniyan (African and African diaspora literature, literary theory, popular culture), Radano (U.S. and global black music, African musical diaspora, cultural theory), Schatzberg (African popular culture, African soccer, African political thought), Songolo (African and Francophone literatures, African and Francophone cinema, literary theory); Associate Professors El-Nossery (North African Middle Eastern Literatures, women's writing, visual studies), Thompson (linguistic and literary ethnography, critical discourse analysis, less commonly taught language pedagogy); Assistant Professors Brown (African screen media, African literature, literary theory), England (Classical Arabic poetry and prose, Modern Arabic literature), Nimis (Francophone Africa, Lingala language and popular music, the Global South), Sajjani (Global HipHop studies, Africana critical theory, socio-political thought and social justice).

For more information about faculty research interests, see their website (<https://african.wisc.edu/people>).

### AFRICAN LANGUAGES AND LITERATURE, M.A.

The mission of the Department of African Cultural Studies is to provide research and teaching in the languages and expressive cultures of Africa and Africans around the world.

The department is the only one of its kind in the United States. For those learning to conduct research in African expressive cultures, it offers curricula leading to both the master of arts degree and the doctor of philosophy degree. For those learning to teach African languages, it offers a terminal master of arts degree with an emphasis on pedagogy. Its students come from all over the world, including many African countries.

## PEDAGOGY TRACK

The M.A. in African languages and literature with pedagogy track is designed to prepare future college-level instructors of African languages and directors of African language programs. This track is meant to prepare future professionals to think critically and knowledgeably about the teaching of African languages and to train and supervise teachers of African languages. It aims to address the goals identified above by allowing students to focus on teaching and interpreting research, and drawing on the strengths of our African languages coordinator to work closely with these students to prepare them for the language-teaching job market.

## MASTER'S DEGREES

M.A., with available pedagogy track

### REQUIREMENTS

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

## MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

24 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits of coursework numbered 300 or above from a UW-Madison undergraduate degree.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 400 or above taken as a UW-Madison University Special students. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

### M.A.

Code	Title	Credits
AFRICAN 402	Theory of African Literature	3-4
AFRICAN 501	Structure and Analysis of African Languages	3-4
AFRICAN 702	African Verbal Stylistics	3
One of the following:		
AFRICAN 703	Topics in Teaching African Languages	
AFRICAN 705	Teaching Portfolio	
Total Credits		9-11

### M.A. with Pedagogy Track

Code	Title	Credits
ENGL 318	Second Language Acquisition	3
One of the following:		
AFRICAN 703	Topics in Teaching African Languages	
AFRICAN 705	Teaching Portfolio	

One graduate-level culture-focused course in the department with emphasis in final paper on culture in language pedagogy

A graduate-level linguistics-focused course in the department, chosen in consultation with the graduate advisor

Portfolio preparation course taken with the African languages coordinator

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all core curriculum coursework.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their advisor, scheduled by December 17 and completed by April 30. Failure to do so will result in a hold being placed on the student's registration.



## ASSESSMENTS AND EXAMINATIONS

M.A. thesis defense required.

## TIME CONSTRAINTS

M.A.: The thesis, written in consultation with the major professor, must be completed no later than two semesters after thesis work begins.

M.A. with pedagogy track: master's exam, supervised by the African languages coordinator, must be completed no later than one semester after completion of the portfolio preparation course.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

M.A. students must complete two years study of African language. Students may petition for an exemption if they have received comparable African language training or have native fluency of an African language.

## ADMISSIONS

Applicants should have a minimum undergraduate grade point average (GPA) of 3.0 (out of a possible 4.0), though special cases may be considered for probationary admission. In addition to the online application, the department requires transcripts of all previous university studies, a statement of research interests showing how these relate to the department's areas of expertise, and three letters of recommendation. Graduate Record Exam (GRE) scores are needed for fellowship applicants, but are not otherwise required for admission. There is no application deadline, but it is recommended that materials be submitted as early as possible before the intended date of entry.

The deadline to apply and be considered for funding is November 15.

Admitted applicants who are judged by the department to have insufficient background in African cultural studies may be assigned course work in addition to the regular required coursework.

Admission to the Ph.D program is determined after successful defense of the M.A. thesis or an M.A. waiver. For those completing an M.A. in the department, admission to the Ph.D. program is determined by the M.A. committee upon successful defense of the M.A. thesis, and with consideration of performance in M.A. course work.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

### CONTENT

- Students will be able to identify canonical authors and texts, historical forms, genres, and structures, and recognize aesthetic and cultural concerns in Africa and its diasporas.
- Students will develop in-depth knowledge in a subfield of specialization within African cultural studies.
- Students will demonstrate their understanding of major theories, approaches, concepts, and current and classical research findings in African and diaspora literary and cultural studies.

- Students will develop a level of proficiency in the different ways of knowing Africa and the diaspora through language, literatures, and cultures.
- Students will understand the main trends in foreign language teaching, and the specific challenges involved in teaching African languages.

## RESEARCH SKILLS

- Students will understand their own learning processes and possess the capacity to intentionally seek, evaluate, and learn from information, and recognize and reduce bias in their thinking.
- Students will effectively retrieve and comprehend primary sources in English and African languages, and secondary sources from a range of disciplines.
- Students will gain firm knowledge of existing research in their area of specialization and its gaps.

## COMMUNICATION SKILLS

- Students will develop or improve speaking, listening, writing, and reading skills in an African language, and integrate these skills to communicate effectively.
- Students will communicate effectively through essays, oral presentations, and discussion, so they may share their knowledge, wisdom, and values with others across social and professional settings.
- Students will show knowledge of conventional rhetorical strategies, and integrate research by other authors while distinguishing between their own ideas and those of others.
- Students will write and speak across disciplinary boundaries with regard to existing research about Africa and the diaspora in the humanities and social sciences.
- Students will demonstrate their ability to organize a large project into logical smaller components, so that it can be addressed in depth in a multi-chapter piece of writing.
- Students will be able to design and carry out a communicative lesson plan in an African language.

## ANALYTIC SKILLS

- Students will discuss cultural texts from various theoretical and critical perspectives, formulate ideas, and make connections between literary/cultural concepts and themes.
- Students will demonstrate command of the terminology and methodology of cultural studies, construct complex arguments, and use primary and secondary sources to support arguments.
- Students will articulate the place of their own research in relation to existing research on related topics.
- Students will observe and evaluate the teaching practice of a foreign language instructor and provide constructive feedback.

## PROFESSIONAL CONDUCT

- Students will recognize and apply principles of ethical and professional conduct in teaching, research, and writing.

## PEOPLE

Professors Cowell (Arabic language, linguistics, literature, and culture), Fair (media studies, popular culture, conflict and post-conflict studies), Olaniyan (African and African diaspora literature, literary theory, popular

culture), Radano (U.S. and global black music, African musical diaspora, cultural theory), Schatzberg (African popular culture, African soccer, African political thought), Songolo (African and Francophone literatures, African and Francophone cinema, literary theory); Associate Professors El-Nossery (North African Middle Eastern Literatures, women's writing, visual studies), Thompson (linguistic and literary ethnography, critical discourse analysis, less commonly taught language pedagogy); Assistant Professors Brown (African screen media, African literature, literary theory), England (Classical Arabic poetry and prose, Modern Arabic literature), Nimis (Francophone Africa, Lingala language and popular music, the Global South), Sajani (Global HipHop studies, Africana critical theory, socio-political thought and social justice).

For more information about faculty research interests, see their website (<https://african.wisc.edu/people>).

## AFRICAN LANGUAGES AND LITERATURE, PH.D.

The mission of the Department of African Cultural Studies is to provide research and teaching in the languages and expressive cultures of Africa and Africans around the world.

The department is the only one of its kind in the United States. For those learning to conduct research in African expressive cultures, it offers curricula leading to both the master of arts degree and the doctor of philosophy degree. For those learning to teach African languages, it offers a terminal master of arts degree with an emphasis on pedagogy. Its students come from all over the world, including many African countries.

### FUNDING

Prospective students should see the program website (<http://african.wisc.edu>) for funding information.

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

54 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

45 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON GRADUATE WORK FROM OTHER INSTITUTIONS

No credits from graduate work from other institutions may count toward the degree.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No credits from a UW–Madison University Special student career are allowed to count toward the degree.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

Two graduate seminars. Two additional courses to be chosen in consultation with the director of graduate studies and the candidate's advisor/supervisor.

#### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

#### OTHER GRADE REQUIREMENTS

Ph.D. candidates should maintain a 3.5 GPA in all core curriculum courses and may not have any more than two Incompletes on their record at any one time.

#### PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

#### ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their thesis committee after passing the preliminary examination.

#### ASSESSMENTS AND EXAMINATIONS

Doctoral students must pass a preliminary examination, a dissertation proposal defense, and the defense of the completed dissertation.

#### TIME CONSTRAINTS

A student may not hold an assistantship for more than five years.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

1. Ph.D. students must complete one year of a major African language taught in this department beyond second year level
2. Reading proficiency in one non-African language other than English. The language must be chosen in consultation with the Department.

## ADMISSIONS

Applicants should have a minimum undergraduate grade point average (GPA) of 3.0 (out of a possible 4.0), though special cases may be considered for probationary admission. In addition to the online application, the department requires transcripts of all previous university studies, a statement of research interests showing how these relate to the department's areas of expertise, and three letters of recommendation. Graduate Record Exam (GRE) scores are needed for fellowship applicants, but are not otherwise required for admission. There is no application deadline, but it is recommended that materials be submitted as early as possible before the intended date of entry.

The deadline to apply and be considered for funding is November 15.

Admitted applicants who are judged by the department to have insufficient background in African cultural studies may be assigned course work in addition to the regular required coursework.

Admission to the Ph.D program is determined after successful defense of the M.A. thesis or an M.A. waiver. For those completing an M.A. in the department, admission to the Ph.D. program is determined by the M.A. committee upon successful defense of the M.A. thesis, and with consideration of performance in M.A. course work.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### CONTENT

- Students will be able to identify canonical authors and texts, historical forms, genres, and structures, as well as aesthetic and cultural concerns in Africa and its diasporas.
- Students will develop in-depth knowledge in a subfield of specialization within African cultural studies.
- Students will demonstrate their understanding of major theories, approaches, concepts, and current and classical research findings in African and diaspora literary and cultural studies.
- Students will develop a level of proficiency in the different "ways of knowing" Africa and the diaspora through language, literatures, and cultures.
- Students will understand the main trends in foreign language teaching, and the specific challenges involved in teaching African languages.
- Students will develop knowledge of a secondary field of research from outside the Department of African Languages and Literature.

#### RESEARCH SKILLS

- Students will understand their own learning processes and possess the capacity to intentionally seek, evaluate, and learn from information, and recognize and reduce bias in their thinking.

- Students will effectively retrieve and comprehend primary sources in English and African languages, and secondary sources from a range of disciplines.
- Students will gain firm knowledge of existing research in their area of specialization and its gaps.
- Students will be able to read materials relevant to African cultural studies (primary and secondary) in a non-African language other than English.
- Students will have an understanding of professional and ethical responsibility with regard to producing original research and working with human subjects.

### COMMUNICATION SKILLS

- Students will develop or improve speaking, listening, writing, reading skills in an African language, and integrate these skills to communicate effectively.
- Students will communicate effectively through essays, oral presentations, and discussion, so they may share their knowledge, wisdom, and values with others across social and professional settings.
- Students show knowledge of conventional rhetorical strategies, and integrate research by other authors while distinguishing between their own ideas and those of others.
- Write and speak across disciplinary boundaries with regard to existing research about Africa and the diaspora in the humanities and social sciences.
- Students will demonstrate their ability to organize a book-length project into logical smaller components, so that it can be addressed in depth in a multi-chapter piece of writing.
- Students will be able to design and carry out a communicative lesson plan in an African language.
- Students will be able to design a syllabus for courses in African cultural studies.

### ANALYTIC SKILLS

- Students will discuss cultural texts from various theoretical and critical perspectives, formulate ideas and make connections between literary/cultural concepts and themes.
- Students will demonstrate command of the terminology and methodology of cultural studies, construct complex arguments, and use primary and secondary sources to support arguments.
- Students will articulate the place of their own research in relation to existing research on related topics.
- Students will observe and evaluate the teaching practice of a foreign language instructor and provide constructive feedback.

### PROFESSIONAL CONDUCT

- Students will recognize, apply, and foster principles of ethical and professional conduct in teaching, research, and writing.

## PEOPLE

Professors Cowell (Arabic language, linguistics, literature, and culture), Fair (media studies, popular culture, conflict and post-conflict studies), Olaniyan (African and African diaspora literature, literary theory, popular culture), Radano (U.S. and global black music, African musical diaspora, cultural theory), Schatzberg (African popular culture, African soccer, African political thought), Songolo (African and Francophone literatures,

African and Francophone cinema, literary theory); Associate Professors El-Nossery (North African Middle Eastern Literatures, women's writing, visual studies), Thompson (linguistic and literary ethnography, critical discourse analysis, less commonly taught language pedagogy); Assistant Professors Brown (African screen media, African literature, literary theory), England (Classical Arabic poetry and prose, Modern Arabic literature), Nimis (Francophone Africa, Lingala language and popular music, the Global South), Sajnani (Global HipHop studies, Africana critical theory, socio-political thought and social justice).

For more information about faculty research interests, see their website (<https://african.wisc.edu/people>).

## AFRO-AMERICAN STUDIES

**Administrative Unit:** Afro-American Studies

**College/School:** College of Letters & Science

**Admitting Plans:** M.A.

**Degrees Offered:** M.A.

**Minors and Certificates:** Doctoral Minor

The program in Afro-American studies at the University of Wisconsin-Madison is dedicated to carrying on the vision of the elders and ancestors who devoted themselves to the highest standards of intellectual rigor and to the realization of a vision of true equality and opportunity. Like W.E.B. Du Bois, Anna Julia Cooper, John Hope Franklin, Zora Neale Hurston and James Porter, the department is committed to bringing the fruits of academic research to the broadest possible audience, within and beyond the walls of the university. The deepest understanding of the complex reality of race in America requires an interdisciplinary approach, one that draws on history and literature, the social sciences, and the arts. Graduate studies are concentrated in three areas:

1. Afro-American Culture (literature, theater history, music and culture, art history and visual culture);
2. History and Society;
3. Black Women's Studies

The M.A. program is based on personalized programs of study shaped to meet the needs of individual students, many of whom participate in the "Bridge" programs which enable them to move directly into Ph.D. programs in Art History, English, and History. Program faculty are experts in their fields and work collaboratively to ensure that graduate students are well prepared to either take on further study at the Ph.D. level or careers in teaching, public service, and the private, corporate sector. The program also offers doctoral minors for students in many graduate programs including African languages and literature, art history, communication arts, comparative literature, education, English, history, music, political science, social work, and sociology.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Afro-American Studies, Doctoral Minor (p. 29)
- Afro-American Studies, M.A. (p. 29)

### PEOPLE

Faculty: Professors Greene (chair), Adell, Drewal, Plummer, Thornton, Werner; Associate Professor Clark-Pujara; Assistant Professors Almiron, Davis

## AFRO-AMERICAN STUDIES, DOCTORAL MINOR

Candidates for the Ph.D. in other programs may obtain a doctoral minor in Afro-American studies by completing a minimum of 12 graduate credits in the department, of which only 3 may be directed-study credits. Three

of the 12 credits must be a seminar course. Advance approval by the candidate's major advisor is required for the doctoral minor.

### PEOPLE

Faculty: Professors Greene (chair), Adell, Drewal, Plummer, Thornton, Werner; Associate Professor Clark-Pujara; Assistant Professors Almiron, Davis

## AFRO-AMERICAN STUDIES, M.A.

The program in Afro-American studies at the University of Wisconsin-Madison is dedicated to carrying on the vision of the elders and ancestors who devoted themselves to the highest standards of intellectual rigor and to the realization of a vision of true equality and opportunity. Like W.E.B. Du Bois, Anna Julia Cooper, John Hope Franklin, Zora Neale Hurston and James Porter, the department is committed to bringing the fruits of academic research to the broadest possible audience, within and beyond the walls of the university. The deepest understanding of the complex reality of race in America requires an interdisciplinary approach, one that draws on history and literature, the social sciences, and the arts. Graduate studies are concentrated in three areas:

1. Afro-American Culture (literature, theater history, music and culture, art history and visual culture);
2. History and Society;
3. Black Women's Studies

The M.A. program is based on personalized programs of study shaped to meet the needs of individual students, many of whom participate in the "Bridge" programs which enable them to move directly into Ph.D. programs in Art History, English, and History. Program faculty are experts in their fields and work collaboratively to ensure that graduate students are well prepared to either take on further study at the Ph.D. level or careers in teaching, public service, and the private, corporate sector. The program also offers doctoral minors for students in many graduate programs including African languages and literature, art history, communication arts, comparative literature, education, English, history, music, political science, social work, and sociology.

### REQUIREMENTS

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

21 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the degree coursework (15 of 30 credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept 9 credits of prior graduate coursework from other institutions towards the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the program's graduate degree requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

The program may decide to accept up to 9 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

## PRIOR COURSEWORK REQUIREMENTS FROM: OTHER UW–MADISON GRADUATE PROGRAMS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other programs.

## CREDITS PER TERM ALLOWED

12 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Students must take 24 credits of approved graduate coursework and 6 Research and Thesis credits. At least 12 of the course credits must be taken in the Department of Afro-American Studies.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

All applicants for admission must satisfy the Graduate School's minimum requirements. Applicants should normally have completed undergraduate course work in subjects related to Afro-American history, culture, or society. Applicants will customarily meet this requirement by completing an undergraduate major in Afro-American studies, in a related social science discipline, or in the humanities with a grade point average of 3.3 or higher on a 4.0 scale. A program to make up deficiencies may be worked out with the graduate admissions committee.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- To provide students with a thorough understanding of a range of disciplinary approaches to the study of the African American experience in the United States and the African diaspora.
- To provide students with a foundation in their area of concentration that will enable them to pursue doctoral work in a relevant discipline, especially in the areas of English and history, where we have established Bridge programs with UW departments.

## PROFESSIONAL CONDUCT

- To familiarize students with the techniques of effective teaching in multiracial classrooms, including training in dealing with controversial issues and potential racial tensions.

### PEOPLE

Faculty: Professors Greene (chair), Adell, Drewal, Plummer, Thornton, Werner; Associate Professor Clark-Pujara; Assistant Professors Almiron, Davis

# AGRICULTURAL AND APPLIED ECONOMICS

**Administrative Unit:** Agricultural and Applied Economics  
**College/School:** College of Agricultural and Life Sciences  
**Admitting Plans:** M.A., M.S., Ph.D.  
**Degrees Offered:** M.A., M.S., Ph.D.  
**Minors and Certificates:** Doctoral Minor  
**Named Options:** Resource and Energy Demand Analysis (M.A.)

The Department of Agricultural and Applied Economics offers graduate degree programs leading to the master of arts, master of science, and doctor of philosophy. Long recognized as one of the top programs in the nation, the department is an active center of research and graduate training in environmental and natural resource economics, the economic development of low-income countries, agricultural economics, community economics, and more recently, resource and energy demand analysis.

Graduate students select courses from among the department's advanced offerings in these areas. Active department seminar and workshop series complement formal classroom instruction. In addition, nearly all students work as graduate research assistants on projects with individual faculty members. Faculty and students carry out research in virtually every region of the globe, with Latin America, Southeast Asia, and sub-Saharan Africa as the areas of strongest geographical concentration. More details on the structure of the graduate programs can be found in the department's graduate student handbooks (<http://www.aae.wisc.edu/gradprogram/handbook>).

While members of the faculty define themselves professionally in terms of the areas of applied economics within which they work, the graduate programs are predicated on the notion that good applied economic analysis requires rigorous and thorough training in economic theory and econometrics. Both the master's and the Ph.D. curricula are grounded in comprehensive training in economic theory and econometrics. The Ph.D. curriculum relies on the doctoral core in theory and econometrics offered by Wisconsin's outstanding economics program. When matched with the department's applied courses, which teach students how to use advanced methods to conceptualize and answer contemporary economic problems, this strong core training prepares students for a variety of challenging careers. Wisconsin graduates have taken positions in academic research and teaching; economic consulting in the private sector; and economic staffing in public agencies and nongovernmental organizations at the local, state, national, or international level. A majority of the department's Ph.D. graduates take faculty positions at universities and colleges.

Department faculty are affiliated with a broad range of institutes and centers across the campus, including the Gaylord Nelson Institute for Environmental Studies, the Center for Integrated Agricultural Systems, the University Center for Cooperatives, the Renk Agribusiness Institute, Center for Community Economic Development, and the area studies programs. Each program has its own rich intellectual life of seminars and other activities.

The department provides office space, a lounge, and IT support for its approximately 60 graduate students. The Taylor-Hibbard Club, the department's graduate student organization, serves as a link between graduate students and the faculty, elects student representatives to

department committees, and promotes academic and social activities for its members.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Agricultural and Applied Economics, Doctoral Minor (p. 32)
- Agricultural and Applied Economics, M.A. (p. 33)
- Agricultural and Applied Economics, M.S. (p. 34)
- Agricultural and Applied Economics, Ph.D. (p. 36)

## PEOPLE

**Faculty:** Professors Coxhead (chair), Barham, Chavas, Cox, Deller, Foltz, Gould, Harris, Jones, Klemme, Phaneuf, Provencher, Rutherford, Stiegert; Associate Professors Alix-Garcia, Hueth, Mitchell, Schechter, Shi; Assistant Professors Du, Grainger, Parker

## AGRICULTURAL AND APPLIED ECONOMICS, DOCTORAL MINOR

Any student enrolled in a UW–Madison doctoral program may pursue a doctoral minor in agricultural and applied economics. Many students take the master's core courses of A A E 635 Applied Microeconomic Theory, A A E 636 Applied Econometric Analysis I and A A E 637 Applied Econometric Analysis II to gain training in microeconomic theory and econometrics that are designed to develop a set of analytical skills applicable to a wide range of problems in many disciplines, especially the social sciences.

## REQUIREMENTS

Graduate students who wish to pursue an Option A external minor in agricultural and applied economics should consult the AAE graduate coordinator or director of graduate studies. Courses should be chosen in consultation with the student's departmental advisor and submitted for approval to AAE before they are taken. Students may earn a doctoral minor in AAE with 9 credits, if all 9 credits are in graduate-level courses preapproved by AAE. Students are expected to achieve a B or better in all courses used for the minor. Directed study courses do not count toward the minor.

The AAE director of graduate studies certifies the minor on the prelim warrant.

## PEOPLE

**Faculty:** Professors Coxhead (chair), Barham, Chavas, Cox, Deller, Foltz, Gould, Harris, Jones, Klemme, Phaneuf, Provencher, Rutherford, Stiegert; Associate Professors Alix-Garcia, Hueth, Mitchell, Schechter, Shi; Assistant Professors Du, Grainger, Parker



## AGRICULTURAL AND APPLIED ECONOMICS, M.A.

The department's traditional master's degree programs presume prior courses in intermediate-level microeconomic and macroeconomic theory, the equivalent of two semesters of calculus, and introductory statistics. The 30-credit master of arts program emphasizes subject matter. The M.A. named option in Resource and Energy Demand Analysis (REDA) presumes prior courses in introductory economics and statistics. This 10-month professional program trains students for careers analyzing resource and energy conservation initiatives for consulting firms, utilities, regulators, and businesses promoting renewables.

The Department of Agricultural and Applied Economics offers graduate degree programs leading to the master of arts, master of science, and doctor of philosophy. Long recognized as one of the top programs in the nation, the department is an active center of research and graduate training in environmental and natural resource economics, the economic development of low-income countries, agricultural economics, community economics, and more recently, resource and energy demand analysis.

Graduate students select courses from among the department's advanced offerings in these areas. Active department seminar and workshop series complement formal classroom instruction. In addition, nearly all students work as graduate research assistants on projects with individual faculty members. Faculty and students carry out research in virtually every region of the globe, with Latin America, Southeast Asia, and sub-Saharan Africa as the areas of strongest geographical concentration. More details on the structure of the graduate programs can be found in the department's graduate student handbooks (<http://www.aae.wisc.edu/gradprogram/handbook>).

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Department faculty are affiliated with a broad range of institutes and centers across the campus, including the Gaylord Nelson Institute for Environmental Studies, the Center for Integrated Agricultural Systems, the University Center for Cooperatives, the Renk Agribusiness Institute, Center for Community Economic Development, and the area studies programs. Each program has its own rich intellectual life of seminars and other activities.

The department provides office space, a lounge, and IT support for its approximately 60 graduate students. The Taylor-Hibbard Club, the

department's graduate student organization, serves as a link between graduate students and the faculty, elects student representatives to department committees, and promotes academic and social activities for its members.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A. (non-thesis track), M.S. (thesis track), M.A. with available named option in Resource and Energy Demand Analysis (REDA)

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

M.A. and M.S.: Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide ([https://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.uP?pCm=view&pP\\_action=advancedSearch&pP\\_form-submit=true](https://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.uP?pCm=view&pP_action=advancedSearch&pP_form-submit=true)).

M.A. with REDA named option: all credits in the curriculum are in graduate-level coursework. For more information see "Program-Specific Courses Required," below.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.A. and M.S.: With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.A. with REDA named option: No credits of graduate coursework from other institutions may count toward the program requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

M.A. and M.S.: Up to 7 credits from a UW-Madison undergraduate degree numbered 300 or above are allowed to count toward the degree, with petition from student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.A. with REDA named option: No credits from a UW-Madison undergraduate degree may be applied toward the program requirements.

## PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL

M.A. and M.S.: With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.A. with REDA named option: No credits earned as a UW–Madison University Special student may be applied toward the program requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

M.A. and M.S.: Microeconomic theory (A A E 635 Applied Microeconomic Theory), econometrics (A A E 636 Applied Econometric Analysis I and A A E 637 Applied Econometric Analysis II), and quantitative methods.

M.A. with REDA named option: The program's lock-step curriculum of 30 credits is described on the program website (<http://reda.aae.wisc.edu/about>).

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Students holding research assistantships are required to maintain an overall 3.2 GPA; grades of B or above in all core curriculum coursework.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENTS AND EXAMINATIONS

M.S.: The thesis track requires a thesis on an approved research topic that is defended in an oral examination.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students

completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Students may be admitted for graduate work upon meeting the requirements for admission to the Graduate School. The department requires the minimum scores determined by the Graduate School on the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). In addition, the department requires that applicants provide test score results from the Graduate Record Exam (GRE) general test (verbal, quantitative, analytical writing).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates and critiques theories and research methods commonly used in agricultural and applied economics.
- Identifies sources and assembles evidence pertaining to questions in agricultural, environmental, development, or community economics.
- Demonstrates understanding of the principle theories of agricultural, environmental, development, or community economics.
- Selects and applies the most appropriate methodologies and practices to answer questions within their selected field.
- Synthesizes information pertaining to questions in their selected field.
- Clearly communicates research results using both oral and written strategies.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Coxhead (chair), Barham, Chavas, Cox, Deller, Foltz, Gould, Harris, Jones, Klemme, Phaneuf, Provencher, Rutherford, Stiegert; Associate Professors Alix-Garcia, Hueth, Mitchell, Schechter, Shi; Assistant Professors Du, Grainger, Parker

## AGRICULTURAL AND APPLIED ECONOMICS, M.S.

The department's traditional master's degree programs presume prior courses in intermediate-level microeconomic and macroeconomic theory, the equivalent of two semesters of calculus, and introductory statistics. The 30-credit master of science program emphasizes research and involves writing a thesis.

The Department of Agricultural and Applied Economics offers graduate degree programs leading to the master of arts, master of science, and doctor of philosophy. Long recognized as one of the top programs in the nation, the department is an active center of research and

graduate training in environmental and natural resource economics, the economic development of low-income countries, agricultural economics, community economics, and more recently, resource and energy demand analysis.

Graduate students select courses from among the department's advanced offerings in these areas. Active department seminar and workshop series complement formal classroom instruction. In addition, nearly all students work as graduate research assistants on projects with individual faculty members. Faculty and students carry out research in virtually every region of the globe, with Latin America, Southeast Asia, and sub-Saharan Africa as the areas of strongest geographical concentration. More details on the structure of the graduate programs can be found in the department's graduate student handbooks (<http://www.aae.wisc.edu/gradprogram/handbook>).

While members of the faculty define themselves professionally in terms of the areas of applied economics within which they work, the graduate programs are predicated on the notion that good applied economic analysis requires rigorous and thorough training in economic theory and econometrics. Both the master's and the Ph.D. curricula are grounded in comprehensive training in economic theory and econometrics. The Ph.D. curriculum relies on the doctoral core in theory and econometrics offered by Wisconsin's outstanding economics program. When matched with the department's applied courses, which teach students how to use advanced methods to conceptualize and answer contemporary economic problems, this strong core training prepares students for a variety of challenging careers. Wisconsin graduates have taken positions in academic research and teaching; economic consulting in the private sector; and economic staffing in public agencies and nongovernmental organizations at the local, state, national, or international level. A majority of the department's Ph.D. graduates take faculty positions at universities and colleges.

Department faculty are affiliated with a broad range of institutes and centers across the campus, including the Gaylord Nelson Institute for Environmental Studies, the Center for Integrated Agricultural Systems, the University Center for Cooperatives, the Renk Agribusiness Institute, Center for Community Economic Development, and the area studies programs. Each program has its own rich intellectual life of seminars and other activities.

The department provides office space, a lounge, and IT support for its approximately 60 graduate students. The Taylor-Hibbard Club, the department's graduate student organization, serves as a link between graduate students and the faculty, elects student representatives to department committees, and promotes academic and social activities for its members.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A. (non-thesis track), M.S. (thesis track), M.A. with available named option in Resource and Energy Demand Analysis (REDA) Minimum

### GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

M.A. and M.S.: Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide ([https://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.uP?pCm=view&pP\\_action=advancedSearch&pP\\_form-submit=true](https://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.uP?pCm=view&pP_action=advancedSearch&pP_form-submit=true)).

M.A. with REDA named option: all credits in the curriculum are in graduate-level coursework. For more information see "Program-Specific Courses Required," below.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.A. and M.S.: With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.A. with REDA named option: No credits of graduate coursework from other institutions may count toward the program requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

M.A. and M.S.: Up to 7 credits from a UW-Madison undergraduate degree numbered 300 or above are allowed to count toward the degree, with petition from student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.A. with REDA named option: No credits from a UW-Madison undergraduate degree may be applied toward the program requirements.

### PRIOR COURSEWORK REQUIREMENT: UW-MADISON UNIVERSITY SPECIAL

M.A. and M.S.: With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.A. with REDA named option: No credits earned as a UW-Madison University Special student may be applied toward the program requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

M.A. and M.S.: Microeconomic theory (A A E 635 Applied Microeconomic Theory), econometrics (A A E 636 Applied Econometric Analysis I and A A E 637 Applied Econometric Analysis II), and quantitative methods.

M.A. with REDA named option: The program's lock-step curriculum of 30 credits is described on the program website (<http://reda.aae.wisc.edu/about>).

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Students holding research assistantships are required to maintain an overall 3.2 GPA; grades of B or above in all core curriculum coursework.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENTS AND EXAMINATIONS

M.S.: The thesis track requires a thesis on an approved research topic that is defended in an oral examination.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Students may be admitted for graduate work upon meeting the requirements for admission to the Graduate School. The department requires the minimum scores determined by the Graduate School on the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). In addition, the department requires that applicants provide test score results from the Graduate Record Exam (GRE) general test (verbal, quantitative, analytical writing).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates and critiques theories and research methods commonly used in agricultural and applied economics.
- Identifies sources and assembles evidence pertaining to questions in agricultural, environmental, development, or community economics.
- Demonstrates understanding of the principle theories of agricultural, environmental, development, or community economics.
- Selects and applies the most appropriate methodologies and practices to answer questions within their selected field.
- Synthesizes information pertaining to questions in their selected field.
- Clearly communicates research results using both oral and written strategies.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Coxhead (chair), Barham, Chavas, Cox, Deller, Foltz, Gould, Harris, Jones, Klemme, Phaneuf, Provencher, Rutherford, Stiegert; Associate Professors Alix-Garcia, Hueth, Mitchell, Schechter, Shi; Assistant Professors Du, Grainger, Parker

## AGRICULTURAL AND APPLIED ECONOMICS, PH.D.

Doctoral students are required to develop comprehensive proficiency in economic theory, mathematics, econometrics, and major and minor fields of concentration. In addition to the prerequisites for the master's program, doctoral applicants should also have mathematical statistics and linear algebra. Candidates for the Ph.D. degree must complete the general requirements of the Graduate School, as well as further requirements which are detailed in the department's application material and website (<http://www.aae.wisc.edu>).

The Department of Agricultural and Applied Economics offers graduate degree programs leading to the master of arts, master of science, and doctor of philosophy. Long recognized as one of the top programs in the nation, the department is an active center of research and graduate training in environmental and natural resource economics, the economic development of low-income countries, agricultural economics, community economics, and more recently, resource and energy demand analysis.

Graduate students select courses from among the department's advanced offerings in these areas. Active department seminar and workshop series complement formal classroom instruction. In addition, nearly all students work as graduate research assistants on projects with individual faculty members. Faculty and students carry out research in virtually every region of the globe, with Latin America, Southeast Asia, and sub-Saharan Africa as the areas of strongest geographical concentration. More details on the structure of the graduate programs

can be found in the department's graduate student handbooks (<http://www.aae.wisc.edu/gradprogram/handbook>).

While members of the faculty define themselves professionally in terms of the areas of applied economics within which they work, the graduate programs are predicated on the notion that good applied economic analysis requires rigorous and thorough training in economic theory and econometrics. Both the master's and the Ph.D. curricula are grounded in comprehensive training in economic theory and econometrics. The Ph.D. curriculum relies on the doctoral core in theory and econometrics offered by Wisconsin's outstanding economics program. When matched with the department's applied courses, which teach students how to use advanced methods to conceptualize and answer contemporary economic problems, this strong core training prepares students for a variety of challenging careers. Wisconsin graduates have taken positions in academic research and teaching; economic consulting in the private sector; and economic staffing in public agencies and nongovernmental organizations at the local, state, national, or international level. A majority of the department's Ph.D. graduates take faculty positions at universities and colleges.

Department faculty are affiliated with a broad range of institutes and centers across the campus, including the Gaylord Nelson Institute for Environmental Studies, the Center for Integrated Agricultural Systems, the University Center for Cooperatives, the Renk Agribusiness Institute, Center for Community Economic Development, and the area studies programs. Each program has its own rich intellectual life of seminars and other activities.

The department provides office space, a lounge, and IT support for its approximately 60 graduate students. The Taylor-Hibbard Club, the department's graduate student organization, serves as a link between graduate students and the faculty, elects student representatives to department committees, and promotes academic and social activities for its members.

## FUNDING

The department offers a number of research assistantships, and students have competed well for university-wide fellowships. The department's students have also received nationally competitive fellowships and research grants from the National Science Foundation, the Social Science Research Council, the Fulbright programs, and others. New students applying for the Ph.D. who wish to be reviewed for the university fellowship competition must complete their applications by December 15.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide ([https://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.uP?pCm=view&pP\\_action=advancedSearch&pP\\_form-submit=true](https://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.uP?pCm=view&pP_action=advancedSearch&pP_form-submit=true)).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 18 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from the UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENT: UW-MADISON UNIVERSITY SPECIAL

With program approval students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Required courses in advanced economic theory (ECON 711 Economic Theory-Microeconomics Sequence and ECON 713 Economic Theory: Microeconomics Sequence; ECON 712 Economic Theory-Macroeconomics Sequence or ECON 714 Economic Theory; Macroeconomics Sequence) and econometrics (ECON 709 Economic Statistics and Econometrics I and ECON 710 Economic Statistics and Econometrics II). A 9-credit major field in one of four areas: international development, environmental and resource economics, economics of agriculture, and community economics. Contact program for list of specific courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a 9-credit minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

Students holding research assistantships are required to maintain an overall 3.2 GPA; grades of B or above in all core curriculum coursework.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENTS AND EXAMINATIONS

Candidates are required to pass two preliminary exams, one in microeconomic theory and one in their major field. In addition, a dissertation proposal must be approved in an oral defense.

## TIME CONSTRAINTS

Students must pass the microeconomic theory requirement before the beginning of year 3. Students must finish all required coursework and pass the major field exam before the beginning of year 4. Students must defend a dissertation proposal before the end of the first semester of year 4.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Students may be admitted for graduate work upon meeting the requirements for admission to the Graduate School. The department requires the minimum scores determined by the Graduate School on the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). In addition, the department requires that applicants provide test score results from the Graduate Record Exam (GRE) general test (verbal, quantitative, analytical writing).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research questions on the cutting edge of agricultural and applied economics.
- Formulates ideas and/or techniques beyond the current boundaries of knowledge within agricultural, environmental, development, or community economics.
- Creates scholarship that makes a substantive contribution to their chosen major field within agricultural and applied economics
- Demonstrates breadth within their learning experiences.
- Advances contributions of their chosen field of study to society.
- Communicates complex ideas in a clear and understandable manner, both orally and in written form.
- Demonstrates the ability to collaboratively formulate and analyze ideas at the cutting edge of agricultural and applied economics.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Coxhead (chair), Barham, Chavas, Cox, Deller, Foltz, Gould, Harris, Jones, Klemme, Phaneuf, Provencher, Rutherford, Stiegert; Associate Professors Alix-Garcia, Hueth, Mitchell, Schechter, Shi; Assistant Professors Du, Grainger, Parker

## AGRICULTURAL AND LIFE SCIENCES—COLLEGE-WIDE

- Agroecology, M.S. (p. 39)
- Biometry, Doctoral Minor (p. 41)
- Biometry, M.S. (p. 41)
- Development, Doctoral Minor (p. 42)
- Development, Ph.D. (p. 42)
- Plant Breeding and Plant Genetics, Doctoral Minor (p. 44)
- Plant Breeding and Plant Genetics, M.S. (p. 44)
- Plant Breeding and Plant Genetics, Ph.D. (p. 45)

## AGROECOLOGY, M.S.

Created in 2007, the agroecology M.S. program at UW–Madison trains students to research and analyze agricultural systems within a broader environmental and socioeconomic context. Key to this endeavor is interdisciplinary expertise, which the agroecology program achieves through working with affiliated faculty members from nearly 20 departments across campus.

A typical cohort consists of 8–12 incoming students with diverse backgrounds and undergraduate majors. Agroecology M.S. students work with faculty on focused projects across a wide range of the traditional departments of the academy. Our core curriculum brings together these students for a multidisciplinary, agroecological, analysis of agricultural systems in a broadened context.

The agroecology program is supported by the interdisciplinary agroecology cluster, which hired three faculty members in 2002: Michael Bell in community and environmental sociology, Claudio Gratton in entomology, and Randall Jackson in agronomy. These faculty, all still active in the program, were the catalyst for what is now a group of more than 50 faculty affiliates who advise agroecology students and participate in program governance.

The cluster concept is an innovation of the University of Wisconsin in which a core group of faculty is hired into an interdisciplinary area, but have tenure homes in traditional departments.

## PROGRAM TRACKS

- The professional practice track trains facilitators to enable broader discussion and negotiation at the interfaces of agriculture and other sectors of society. The goal of this "action-in-society" track is to train analysts to increase understanding about the roles of agricultural systems in multi-functional landscapes, and the public policy that shapes these roles.
- The research track addresses the need for continued research and scholarship in order that discussions and negotiations are well informed. Students will have the opportunity to obtain experience in the scholarship of original research, culminating in the writing of a thesis.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available tracks in research, and public practice

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

34 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

23 out of 34 total credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide ([https://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.uP?pCm=view&pP\\_action=advancedSearch&pP\\_form-submit=true](https://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.uP?pCm=view&pP_action=advancedSearch&pP_form-submit=true)). Please refer to Agroecology Learning Plans.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, up to 7 credits from UW–Madison numbered 300 or above are allowed to count toward the degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL

With program approval students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Agroecology Field Study (Agroecol 720); The Farm as a Socio-environmental Endeavor (Agroecol 701); The Multifunctionality

of Agriculture (Agroecol 702); and **three** semesters of Seminar in Agroecology (Agroecol 710)

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all core curriculum coursework.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to submit a learning plan, signed by their advisor, by the end of their second semester. Note: there are separate learning plans for public practice and research tracks.

## ASSESSMENTS AND EXAMINATIONS

The research track requires a formal thesis and public defense; the public practice track requires a comprehensive report and public presentation.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

### ADMISSIONS AND FREQUENTLY ASKED QUESTIONS

The agroecology program accepts students from a wide range of undergraduate majors, not limited to the social and natural sciences. Because the admissions process is highly competitive, applicants should have a record of strong grades and GRE scores, agroecology-relevant interests and experience, and a commitment to learning in a multidisciplinary program. The deadline for fall semester applications is January 15. Inquiries at other times may be considered.

The initial application process is outlined below. Prospective students should keep in mind, however, that this document-based application is only the first step in the admissions process. Students who are deemed admissible on the merits of these documents must then identify an academic advisor and a plan for funding to be fully admitted. The agroecology program will assist students in this endeavor. More information on the process of seeking out funding and an

advisor is available in the program's Student Handbook (<http://agroecology.wisc.edu/143.htm>). Students who are interested in applying should contact the program administrator.

### SUBMIT THE FOLLOWING TO THE UW–MADISON GRADUATE SCHOOL:

- Online application and application fee.
- Graduate Record Examination (GRE) scores. International applicants whose native language is not English are required to take the TOEFL or IELTS. All test scores must be submitted electronically by the Educational Testing Service to UW–Madison (ETS code 1846). Copies or faxes cannot be accepted.
- Three letters of recommendation. When completing the online application, submit the names and email addresses of three people who will provide letters of recommendation. They will receive instructions on how to upload their letters.

### SUBMIT THE FOLLOWING TO THE AGROECOLOGY PROGRAM ADMINISTRATOR:

- Electronically, a one-page Statement of Purpose. In the statement, students should describe their interests and goals and which UW–Madison faculty members they would like to work with. In addition, students should identify which program track they plan to pursue—Research or Public Practice—and state why they are interested in this option. Knowing students' intentions will help the program better understand their academic and career goals. Finally, students should indicate if they intend to pursue a Ph.D. degree after completing the master's in agroecology. Although funding isn't guaranteed, some fellowships require that students intend to continue at the Ph.D. level.
- Electronically, a curriculum vitae.
- Two official copies of transcripts for all undergraduate work (and graduate, if relevant). Many schools are able to send electronic versions of official transcripts directly to the program administrator. Electronic versions are preferred. Please do not send transcripts to the Graduate School.

Frequently asked questions regarding the graduate program are available on the agroecology website (<http://www.agroecology.wisc.edu/apply.htm>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will analyze tradeoffs of different agricultural systems embedded within the greater complexity of socio-ecological systems.
- Students will consider and synthesize concepts of systems, ecology, and public process.
- Students will learn to engage in careful consideration of the social, economic, and environmental outcomes of different industrial and biological processes.
- Students will understand the potential of inclusive participatory processes in research and analysis of agroecological systems.

### PROFESSIONAL CONDUCT

- Students will recognize and apply principles of ethical and professional conduct in their coursework, research, and communications in the field of agroecology.



## PEOPLE

**Faculty:** Alatout, Albrecht, Arriaga, Barak, Bart, Bell, Bland, Bussan, Casler, Charkowski, Collins, Colquhoun, Cox, Cullen, Davis, Dawson, Dennis, Feinstein, Genskow, Gilbert, Gratton, Groves, Harrington, Hogg, Hueth, Jackson (chair), Kucharik, Luschei, MacGuidwin, Mitchell, Morales, Norman, Ozdogan, Patterson, Picasso, Reinemann, Renz, Rickenbach, Rissman, Ruark, Silva, Steffan, Stoltenberg, Thompson, Tracy, Treves, Ventura, Wattiaux

## BIOMETRY, DOCTORAL MINOR

### BIOMETRY, M.S.

Biometry is the development and application of statistical methods to biological problems. At the University of Wisconsin, biometry refers to this application to problems from plant, animal and agricultural biology. (Biostatistics denotes this application to human biology.) The biometry program is an M.S. degree program in the field of biometry.

The program is interdisciplinary, providing formal course work in statistics and biology, consulting experience, and supervised research combining the two areas. Students completing the program will understand biological processes and have the ability to apply and extend a broad range of statistical concepts and techniques to biological problems. This integration of statistics and biology is the distinguishing feature of the program. The biometry program is distinct from the M.S. statistics program in its interdisciplinary emphasis and corresponding reduced depth in statistics. (Students interested in training with statistical consulting as the primary focus should apply for the M.S. in statistics through the statistics department.)

The biometry program is intended for two groups of students:

1. students simultaneously working toward or intending to work toward a Ph.D. in a biological discipline and
2. non-Ph.D. students.

Students who complete the M.S. in biometry and the Ph.D. in a biological science should be at the forefront of quantitative biological research. Students who stop with the M.S. in biometry, possibly obtaining another M.S. in a biological science concurrently, will be well suited for positions with industry or government focused on quantitative biological research.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of degree coursework (15 credits out of 30 total credits) must be completed in statistics courses numbered 600 or above (which the statistics department considers to be graduate courses).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions towards the graduate degree credit and graduate coursework (50%) requirements. Coursework earned five or more years prior to admission to the master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

No credits earned while a UW-Madison University Special student are allowed to count toward the degree.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Yes—see the program website (<http://www.stat.wisc.edu/masters-biometry>) for a list of required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

A grade of B or better must be received in any course used to fulfill the required and elective course requirements.

### PROBATION POLICY

Candidates who fail to meet satisfactory progress criteria in two consecutive reviews will be dropped from the program.

### ADVISOR / COMMITTEE

Students are required to meet with their advisor near the beginning of each semester to discuss course selection and progress.

### ASSESSMENT AND EXAMINATIONS

Candidates must complete a project with an emphasis on the integration of statistics and science. A final oral examination is also required upon completion of the coursework and project.

## TIME CONSTRAINTS

The student should make application for both the master's and Ph.D. degrees during the semester in which they defend. In other words, the biometry degree should be completed by the semester in which a concurrent Ph.D. degree is completed. It is expected that all enrolled students will complete the program within three years.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Prospective students may apply for admission to the biometry program without application to any other program. Prospective students may also apply simultaneously with application to another program or after admission into another program. It is anticipated that most students enrolled in the biometry program will be enrolled concurrently in another program.

Acceptance of a prospective student by a statistical and biological co-advisor, who should be identified at the time of application, is necessary for admission into the Program and input from prospective co-advisors will be sought in the admissions process. It is expected that most students will be supported through a biological department or program or with their own funds. Opportunity for financial support through the program is extremely limited.

Applicants to the M.S. program should have completed the following prerequisites:

1. undergraduate calculus (MATH 221 Calculus and Analytic Geometry 1, MATH 222 Calculus and Analytic Geometry 2, and MATH 234 Calculus--Functions of Several Variables or equivalent);
2. a course in statistics (HORT/F&W ECOL/STAT 571 Statistical Methods for Bioscience I and STAT/F&W ECOL/HORT 572 Statistical Methods for Bioscience II or equivalent one year sequence);
3. background courses in biology (e.g., BOTANY/BIOLOGY 130 General Botany, ZOOLOGY/BIOLOGY 101 Animal Biology & ZOOLOGY/ZOOLOGY 102 Animal Biology Laboratory, BIOLOGY/BOTANY/ZOOLOGY 151 Introductory Biology & BIOLOGY/BOTANY/ZOOLOGY 152 Introductory Biology).

The background courses in biology are a bare minimum; it is anticipated that almost all successful applicants will have a strong background in some area of biological science. Under extenuating circumstances, students may appeal to the Biometry Executive Committee for exemptions to prerequisites or requirements.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrates understanding and critical evaluation of statistical methods selected for applications in scientific inquiries.
- Identifies data sources and study design, and assembles appropriate statistical approaches to data analysis, in a particular scientific field of study.
- Evaluates and synthesizes data information pertaining to questions in the field of study.
- Communicates data concepts and analysis results clearly.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Clayton (Statistics/Plant Pathology), Ané (Statistics/Botany), Yandell (Statistics/Horticulture), Zhu (Statistics/Entomology)

## DEVELOPMENT, DOCTORAL MINOR

Any student enrolled in a UW–Madison doctoral program can pursue a doctoral minor in development. The doctoral minor offers systematic training in the field of development studies, and is designed to be tailored to students' interests in interdisciplinary approaches to international development. A doctoral minor is an excellent way to gain training in the analysis of issues, approaches, and practices in international development, and to apply to students' research and teaching interests. Courses for the development minor are drawn from over 15 units across campus and cover a diverse array of disciplinary, areas studies, and sectoral approaches to international development.

## REQUIREMENTS

Graduate students who wish to pursue an Option A external minor in development should consult the chair of the program. Courses are chosen in conjunction with the chair, who serves as the minor advisor, and the student's departmental advisor. A student may earn a doctoral minor in development with 9 credits, if all 9 credits are in development courses numbered 700 and above. Alternatively, a student may earn the minor with 12 credits if these are courses numbered 300 and above and identified as designed for graduate work. Students are expected to achieve a B or better in all courses used for the minor. Directed study courses do not count toward the minor. Students may not use colloquia or "brown bag" format courses toward requirements of the doctoral minor.

## PEOPLE

**Faculty:** Professors Alatout, Apple, Barham, Bowie, Chavas, Collins, Coxhead, Elder, Ewig, Fair, Foltz (chair), Green, Hendley, Jacobs, Keller, Kendall, Klug, Lim, Liu, Naughton, Seidman, Sethi, Shah, Stern, Stoecker, Tigges, Tripp, Turner, Ventura, Winichakul, Young, Zepeda

## DEVELOPMENT, PH.D.

The mission of the Ph.D. program in development studies is to prepare Ph.D. graduates for careers in social science research, policy, and education related to international development issues. The target audience includes people who wish to prepare for careers in international development as well as midcareer international development professionals who will return to their original employer or employment sector after earning a Ph.D. Applicants are expected to have experience working in developing countries. The program emphasizes interdisciplinary social science research and analysis designed to address the problems of developing and emerging economies.

Students from the United States and 40 countries have enrolled since the program was established in 1970. Over 125 alumni work in a wide range of capacities with various government agencies, nongovernment agencies, and universities in the United States and other countries. Most alumni from other countries have returned there to take up senior-level posts in government and other national institutions and in academia.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

33 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the degree coursework (26 of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 12 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Students work with their advisors to design an individualized program of study.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Students are not required to complete a doctoral minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.2 GPA required.

### OTHER GRADE REQUIREMENTS

No other grade requirements.

### PROBATION POLICY

If students fall below the satisfactory progress requirements, including the 3.2 GPA, the program will launch an assessment exercise analyzing the student's fit in the program.

### ADVISOR / COMMITTEE

All students must have an advisor. After the second semester the student will build a three-member faculty committee. At the time of defense, a five-member interdisciplinary committee must be established.

### ASSESSMENTS AND EXAMINATIONS

Students must complete a written preliminary examination after the student's program coursework has been completed. For more information, see the program's website (<http://devstudies.wisc.edu/about.html>).

### TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

Language requirements vary by program of study.

## ADMISSIONS

Students seeking admission to the program must already hold a master's degree in a social science, preferably with a thesis requiring original research. Previous experience living and/or working in a developing country in some capacity (Peace Corps, non-government organizations, individual initiatives, etc.) is an important aspect of a successful applicant's background. A student's application is judged on the basis of previous academic records, letters of recommendation, a personal statement, and a research proposal. This proposal will form the cornerstone of the student's program. It will provide the admissions committee with a clear explanation of the direction the student intends to take with the research. General Graduate Record Exam (GRE) scores for

all applicants and TOEFL or IELTS scores for international applicants are required.

In addition to the online application and reasons for graduate study, applicants must submit a letter clearly outlining reasons for choosing the Ph.D. in development; dissertation research proposal; official transcripts for all post-secondary institutions attended; three letters of recommendation; curriculum vitae.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research questions reflecting an interdisciplinary perspective on development research, theory and practice.
- Formulates ideas and/or techniques beyond the current boundaries of knowledge within development studies.
- Creates scholarship that makes a substantive contribution to development studies.
- Demonstrates interdisciplinary breadth within their learning experiences.
- Communicates complex ideas in a clear and understandable manner, both orally and in written form.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct in their research, teaching, and policy work.

## PEOPLE

**Faculty:** Professors Alatout, Apple, Barham, Bowie, Chavas, Collins, Coxhead, Elder, Ewig, Fair, Foltz (chair), Green, Hendley, Jacobs, Keller, Kendall, Klug, Lim, Liu, Naughton, Seidman, Sethi, Shah, Stern, Stoecker, Tigges, Tripp, Turner, Ventura, Winichakul, Young, Zepeda

## PLANT BREEDING AND PLANT GENETICS, DOCTORAL MINOR

### REQUIREMENTS

Ph.D. candidates in other degree programs who wish to pursue a doctoral minor in plant breeding and plant genetics must complete 10 credits of work with at least 2 credits from the plant breeding area and 2 credits from another area of the core curriculum. Also required are 2 credits of seminar (HORT/AGRONOMY/GENETICS 957 Seminar-Plant Breeding ). Contact the program for more information concerning the minor.

## PEOPLE

**Faculty:** *Agronomy*—Ane, Casler, de Leon, H. Kaeppeler, S. Kaeppeler, Tracy; *Biochemistry*—Amasino, Bednarek; *Botany*—Baum, Maeda, Waller; *Entomology*—Brunet; *Genetics*—Masson, Zhong; *Horticulture*—Bamberg, Bethke, Dawson, Endelman Goldman, Havey (chair), Jansky, Jiang, Krysan, Nienhuis, Palta, Patterson, Simon, Spooner, Weng, Zalapa; *Plant Pathology*—Bent, Rouse; *Statistics*—Broman, Yandell

## PLANT BREEDING AND PLANT GENETICS, M.S.

The program leading to the master of science or the doctor of philosophy in plant breeding and plant genetics provides a broad exposure in the various disciplines involved and specialization in a particular area. The program is truly interdisciplinary with faculty participants from agronomy, biochemistry, botany, forest and wildlife ecology, genetics, horticulture, plant pathology, and statistics. Research areas include biochemical and molecular genetics, biometry, cytogenetics and cytology, genecology, genetics, plant breeding, and quantitative genetics.

The plant breeding and plant genetics program has been designated a UW System Center of Excellence. The 50–60 students majoring in the program come from throughout the United States and all over the world.

Faculty have included members of the National Academy of Sciences, endowed chair professors, and recipients of the National Council of Plant Breeders "Genetic and Plant Breeding Award." The University of Wisconsin leads the nation in the number of plant breeding programs and number of graduate students trained. Graduates are found in responsible positions with academic institutions, research institutions, and private companies involved in molecular to cultivar development work.

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREE

M.S.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact program for list of specific courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all core curriculum coursework.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

Students are recommended to convene a yearly progress report meeting with their thesis committee.

## ASSESSMENTS AND EXAMINATIONS

A formal M.S. thesis is required.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

A bachelor's degree from an approved institution, an undergraduate grade point average of at least 3.0 (on a 4.0 scale), and an undergraduate major suitable for entering the proposed field are required. Normally, students will have had undergraduate training in the biological or

agricultural sciences. Satisfactory preparation for graduate study should include mathematics through integral calculus, chemistry through organic chemistry with lab, physics through light and electricity, and a comprehensive biology sequence. Additional course work in these areas may be required during the first year of graduate study if deficiencies exist.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates the theories, research methods, and approaches to inquiry in the field of plant breeding and plant genetics.
- Identifies sources and assembles evidence pertaining to questions in the field of plant breeding and plant genetics.
- Demonstrates understanding of the primary field of study in a global context.
- Selects and utilizes the most appropriate methodologies and practices.
- Synthesizes information pertaining to questions in the field of plant breeding and plant genetics.
- Communicates clearly in ways appropriate to the field of plant breeding and plant genetics.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** *Agronomy*—Ane, Casler, de Leon, H. Kaeppler, S. Kaeppler, Tracy; *Biochemistry*—Amasino, Bednarek; *Botany*—Baum, Maeda, Waller; *Entomology*—Brunet; *Genetics*—Masson, Zhong; *Horticulture*—Bamberg, Bethke, Dawson, Endelman Goldman, Havey (chair), Jansky, Jiang, Krysan, Nienhuis, Palta, Patterson, Simon, Spooner, Weng, Zalapa; *Plant Pathology*—Bent, Rouse; *Statistics*—Broman, Yandell

## PLANT BREEDING AND PLANT GENETICS, PH.D

The program leading to the master of science or the doctor of philosophy in plant breeding and plant genetics provides a broad exposure in the various disciplines involved and specialization in a particular area. The program is truly interdisciplinary with faculty participants from agronomy, biochemistry, botany, forest and wildlife ecology, genetics, horticulture, plant pathology, and statistics. Research areas include biochemical and molecular genetics, biometry, cytogenetics and cytology, genecology, genetics, plant breeding, and quantitative genetics.

The plant breeding and plant genetics program has been designated a UW System Center of Excellence. The 50–60 students majoring in the program come from throughout the United States and all over the world.

Faculty have included members of the National Academy of Sciences, endowed chair professors, and recipients of the National Council of Plant Breeders "Genetic and Plant Breeding Award." The University of Wisconsin leads the nation in the number of plant breeding programs and number of graduate students trained. Graduates are found in responsible positions

with academic institutions, research institutions, and private companies involved in molecular to cultivar development work.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### DOCTORAL DEGREE

Ph.D.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 out of 51 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

Contact program for list of specific courses.

#### DOCTORAL MINOR/BREADTH REQUIREMENTS

Students who wish to complete a cohesive body of work outside the major may wish obtain a doctoral minor, and should declare the minor

at the certification meeting. Minor requirements are determined by the minor department or program.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

#### OTHER GRADE REQUIREMENTS

Ph.D. candidates should maintain a 3.0 GPA in all core curriculum courses and may not have any more than two Incompletes on their record at any one time.

#### PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

#### ADVISOR / COMMITTEE

Students are recommended to convene a yearly progress report meeting with their thesis committee after passing the preliminary examination.

#### ASSESSMENTS AND EXAMINATIONS

Doctoral students must pass both the oral preliminary and final thesis exams.

#### TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

#### LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

A bachelor's degree from an approved institution, an undergraduate grade point average of at least 3.0 (on a 4.0 scale), and an undergraduate major suitable for entering the proposed field are required. Normally, students will have had undergraduate training in the biological or agricultural sciences. Satisfactory preparation for graduate study should include mathematics through integral calculus, chemistry through organic chemistry with lab, physics through light and electricity, and a comprehensive biology sequence. Additional course work in these areas may be required during the first year of graduate study if deficiencies exist.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to knowledge within the field of plant breeding and plant genetics.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of plant breeding and plant genetics.
- Creates research that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of plant breeding and plant genetics to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** *Agronomy*—Ane, Casler, de Leon, H. Kaeppler, S. Kaeppler, Tracy; *Biochemistry*—Amasino, Bednarek; *Botany*—Baum, Maeda, Waller; *Entomology*—Brunet; *Genetics*—Masson, Zhong; *Horticulture*—Bamberg, Bethke, Dawson, Endelman Goldman, Havey (chair), Jansky, Jiang, Krysan, Nienhuis, Palta, Patterson, Simon, Spooner, Weng, Zalapa; *Plant Pathology*—Bent, Rouse; *Statistics*—Broman, Yandell

# AGRONOMY

**Administrative Unit:** Agronomy

**College/School:** College of Agricultural and Life Sciences

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

Training in agronomy prepares graduates for professional careers in research, teaching, and extension at academic and government institutions, and for research and technical careers in industry in areas such as biotechnology, hybrid and variety development, and crop management and protection. The department may be consulted for specific career information.

Excellent facilities for research are available in the department, including fully equipped laboratories, growth chambers and greenhouses, and complete field facilities at nearby agronomy research farms and at farms throughout the state. Students have access to highly controlled, plant growth facilities at the university's Biotron and to special analytical services provided by the campus Biotechnology Center.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Agronomy, Doctoral Minor (p. 48)
- Agronomy, M.S. (p. 48)
- Agronomy, Ph.D. (p. 50)

## PEOPLE

**Faculty:** Professors Tracy (chair), Albrecht, Ane, Casler, Conley, Duke, Henson, Jackson, Jahn, S. Kaeppler, Kucharik, Lauer, Stoltenberg, Undersander; Associate Professors de Leon, H. Kaeppler, Renz; Assistant Professors Gutierrez, Picasso

## AGRONOMY, DOCTORAL MINOR

Students enrolled in other Ph.D. programs may pursue a doctoral minor in agronomy. Students with interest in gaining training in crop production and management, weed science, agroecosystems, molecular biology, plant physiology and biochemistry or plant breeding to supplement their primary disciplinary program may consider an Option A minor in agronomy.

## REQUIREMENTS

Graduate students who wish to pursue a doctoral minor in agronomy must have an agronomy faculty member serve as the minor professor on their research committees (oral preliminary exam committee and final exam committee).

Courses are chosen in conjunction with the minor professor and the committee to provide relevant breadth in the student's training. A student may earn a doctoral minor in agronomy with 9 credits in exclusively graduate-level agronomy courses numbered 700 and above, or 300 level

and above identified as designed for graduate work or courses that assess graduate students separately from undergraduate students. Alternatively, up to 3 graduate-level (700 or above), or 300 level and above identified as designed for graduate work, credits of plant, ecology, or environment-related coursework from other departments could be included in the 9-credit total. At least 1 credit (and up to 2 credits) must be AGRONOMY 920 Seminar. The proposed course plan to satisfy Option A minor must be approved by the Department of Agronomy Graduate Studies Committee.

## PEOPLE

**Faculty:** Professors Tracy (chair), Albrecht, Ane, Casler, Conley, Duke, Henson, Jackson, Jahn, S. Kaeppler, Kucharik, Lauer, Stoltenberg, Undersander; Associate Professors de Leon, H. Kaeppler, Renz; Assistant Professors Gutierrez, Picasso

## AGRONOMY, M.S.

Training in agronomy prepares graduates for professional careers in research, teaching, and extension at academic and government institutions, and for research and technical careers in industry in areas such as biotechnology, hybrid and variety development, and crop management and protection. The department may be consulted for specific career information.

Excellent facilities for research are available in the department, including fully equipped laboratories, growth chambers and greenhouses, and complete field facilities at nearby agronomy research farms and at farms throughout the state. Students have access to highly controlled, plant growth facilities at the university's Biotron and to special analytical services provided by the campus Biotechnology Center.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available comprehensive, and thesis tracks

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide.



## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept up to 9 credits of prior graduate coursework from other institutions toward the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison towards fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

The program may decide to accept up to 9 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

## CREDITS PER TERM ALLOWED

12 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Masters degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Candidates for graduate study should have a bachelor's degree in agriculture or in the biological, chemical, or physical sciences. To be admitted to the Ph.D. program in full standing, candidates must fulfill minimum requirements in chemistry, calculus, statistics, and biology. Contact the department or visit the website (<http://agronomy.wisc.edu>) for details. Students considering graduate study in agronomy should make inquiries to the department several months before the desired enrollment date. In addition to the online application, the department requires a statement of purpose, GRE scores, transcripts, and three letters of recommendation. Candidates for department research and teaching assistantships can be accepted at any time of the year; however, candidates for university fellowships must apply by January 2 for fall enrollment.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Tracy (chair), Albrecht, Ane, Casler, Conley, Duke, Henson, Jackson, Jahn, S. Kaepler, Kucharik, Lauer, Stoltenberg,

Undersander; Associate Professors de Leon, H. Kaeppler, Renz; Assistant Professors Gutierrez, Picasso

## AGRONOMY, PH.D.

Training in agronomy prepares graduates for professional careers in research, teaching, and extension at academic and government institutions, and for research and technical careers in industry in areas such as biotechnology, hybrid and variety development, and crop management and protection. The department may be consulted for specific career information.

Excellent facilities for research are available in the department, including fully equipped laboratories, growth chambers and greenhouses, and complete field facilities at nearby agronomy research farms and at farms throughout the state. Students have access to highly controlled, plant growth facilities at the university's Biotron and to special analytical services provided by the campus Biotechnology Center.

## FUNDING

Prospective students should see the program website (<http://agronomy.wisc.edu/graduate-admissions/aidopps>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 out of 51 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept up to 12 credits of prior graduate coursework from other institutions toward the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement

can be satisfied only with courses taken as a graduate student at UW–Madison.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison towards fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

The program may decide to accept up to 12 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Candidates for graduate study should have a bachelor's degree in agriculture or in the biological, chemical, or physical sciences. To be admitted to the Ph.D. program in full standing, candidates must fulfill minimum requirements in chemistry, calculus, statistics, and biology. Contact the department or visit the website for details. Students considering graduate study in agronomy should make inquiries to the department several months before the desired enrollment date. In addition to the online application, the department requires a statement of purpose, GRE scores, transcripts, and three letters of recommendation. Candidates for department research and teaching assistantships can be accepted at any time of the year; however, candidates for university fellowships must apply by January 2 for fall enrollment.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Tracy (chair), Albrecht, Ane, Casler, Conley, Duke, Henson, Jackson, Jahn, S. Kaeppler, Kucharik, Lauer, Stoltenberg,

Undersander; Associate Professors de Leon, H. Kaeppler, Renz; Assistant Professors Gutierrez, Picasso

# ANIMAL SCIENCES

**Administrative Unit:** Animal Sciences

**College/School:** College of Agricultural and Life Sciences

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The UW–Madison Department of Animal Sciences consistently ranks among the best Animal Sciences departments in the country and was recently ranked #1 by the *Chronicle of Higher Education*. Degrees include master of science (research or academic track) in animal sciences and doctor of philosophy with a major in animal sciences or in an interdisciplinary program.

The department emphasizes *in vivo* and *in vitro* studies that probe relationships at a fundamental mechanistic level as well as addressing current practical issues in animal agriculture. Studies may often employ the use of livestock or laboratory animals, or both, as subjects. Development of an individual course of study is flexible in order to meet the needs of students with varied interests. Graduates find employment in academic teaching and research, in professional veterinary or medical degree programs, in industrial research in the food and feed industries, in laboratory research programs with governmental and international agencies, private corporations, and in industrial or institutional management positions requiring a high level of scientific training.

The department is based in the Animal Sciences Building, which contains facilities for teaching and research, including a Computing and Biometry Laboratory and the Biological and Biomaterials Preparation Imaging and Characterization Facility. Nearby are the Livestock Laboratory, a state-of-the-art facility, and the Muscle Biology Laboratory. Teaching, research, and project assistantships are available to qualified students. Fellowships, scholarships, and traineeship awards are available from federal training programs, research grants, gifts and trusts, and special program funds.

## RESEARCH FOCUS AREAS

Students may choose to focus on the areas of: nutrition, rumen microbiology, aquaculture, reproductive physiology–endocrinology, genetics, animal breeding, muscle biology, meat science, cell biology, animal health, immunity and toxicology, or international agriculture. Considerable opportunity for study exists in joint programs with bacteriology, toxicology, biochemistry, the interdepartmental graduate program in nutritional sciences, genetics, endocrinology, reproductive physiology training program, food science, physiology, agricultural and applied economics, biometry, cellular and molecular biology, pharmaceutical sciences, chemical and biological engineering, bioengineering, comparative biosciences and anatomy.

The area of nutrition involves a joint degree with the Department of Animal Sciences and either the Department of Nutritional Sciences or the Department of Biochemistry. Usually, students work with professors from both departments so fundamental concepts complement practical applications. Ruminant nutrition candidates often minor or have a joint major in the Department of Bacteriology. Nutritional research ranges from field studies to laboratory biochemical studies.

The endocrinology–reproductive physiology area ranges from hormonal studies with livestock, primates, and laboratory animals to biochemical

studies at the cellular level including stem cell biology. These studies include mechanism of gene action, physiological genetics, *in vitro* maturation, fertilization, embryo development, cloning and gene transfer, neuroendocrinology, and the environmental and genetic control of puberty and postpartum anestrus.

The genetics–animal breeding focus includes a variety of areas from immunogenetics and molecular genetics to quantitative and population genetics. The animal breeding program seeks to develop, evaluate, and apply classical, quantitative, biochemical, and physiological genetics toward improving animal breeding techniques. Studies range from theoretical considerations of quantitative genetics to laboratory experimentation on genetic controls of growth and reproduction, gene transfer and cloning to field experimentation on producer herds and flocks. Candidates may minor in several areas including genetics, statistics, physiology, or biochemistry.

Meat science and muscle biology studies probe the relationship of muscle structure, composition, and metabolism to growth, the contractile function, and meat quality. Similar studies related to adipose tissue are included. This fundamental research is applied to muscle efficiency and improved retail meat quality and composition.

The area of cellular biology, animal health, immunity, and toxicology includes basic research which seeks to develop an understanding of cellular/subcellular structure and function, cell regulation, and cell–cell interactions. Cell function, as it relates to mechanisms of immunity and the effects of natural and synthetic compounds, forms the basis for investigations using *in vitro* and *in vivo*, whole animal, model systems. Results of fundamental studies are directly applicable and coordinated with ongoing applied research programs in animal and human health.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Animal Sciences, Doctoral Minor (p. 52)
- Animal Sciences, M.S. (p. 53)
- Animal Sciences, Ph.D. (p. 55)

## PEOPLE

**Faculty:** Professors Schaefer (chair), Aberle, Albrecht, Claus, Cook, Crenshaw, Gianola, Khatib, Kirkpatrick, Parrish, Reed, Richards, Rosa, Thomas; Associate Professor Sindelar; Assistant Professors Berres, Fadl

## ANIMAL SCIENCES, DOCTORAL MINOR

Any student enrolled in a UW–Madison doctoral program can pursue a doctoral minor in Animal Sciences. The doctoral minor offers substantial and systematic training in the field of Animal Sciences and can be tailored to a student's specific interests. A doctoral minor in Animal Sciences is an excellent way to gain training in research methods as well as in substantive topical areas related to Animal Sciences that can be applied to one's research field and to one's teaching.

## REQUIREMENTS

Graduate students who wish to pursue an Option A external minor in Animal Sciences should consult the graduate coordinator or Chair of the Graduate Committee of the department. Courses should be chosen in consultation with the student's departmental advisor and submitted for approval to Animal Sciences before they are taken. A student may earn a doctoral minor in Animal Sciences with 9 credits, if all 9 credits are in graduate-level courses pre-approved by Animal Sciences. Students are expected to achieve a B or better in all courses used for the minor. Directed study courses do not count toward the minor nor do audits or pass/fail courses. The original approved copy of the course list must be submitted to the Graduate School office at the time of the request for the preliminary exam warrant.

## PEOPLE

**Faculty:** Professors Schaefer (chair), Aberle, Albrecht, Claus, Cook, Crenshaw, Gianola, Khatib, Kirkpatrick, Parrish, Reed, Richards, Rosa, Thomas; Associate Professor Sindelar; Assistant Professors Berres, Fadl

## ANIMAL SCIENCES, M.S.

The UW–Madison Department of Animal Sciences consistently ranks among the best Animal Sciences departments in the country and was recently ranked #1 by the *Chronicle of Higher Education*. Degrees include master of science (research or academic track) in animal sciences and doctor of philosophy with a major in animal sciences or in an interdisciplinary program.

The department emphasizes *in vivo* and *in vitro* studies that probe relationships at a fundamental mechanistic level as well as addressing current practical issues in animal agriculture. Studies may often employ the use of livestock or laboratory animals, or both, as subjects. Development of an individual course of study is flexible in order to meet the needs of students with varied interests. Graduates find employment in academic teaching and research, in professional veterinary or medical degree programs, in industrial research in the food and feed industries, in laboratory research programs with governmental and international agencies, private corporations, and in industrial or institutional management positions requiring a high level of scientific training.

The department is based in the Animal Sciences Building, which contains facilities for teaching and research, including a Computing and Biometry Laboratory and the Biological and Biomaterials Preparation Imaging and Characterization Facility. Nearby are the Livestock Laboratory, a state-of-the-art facility, and the Muscle Biology Laboratory. Teaching, research, and project assistantships are available to qualified students. Fellowships, scholarships, and traineeship awards are available from federal training programs, research grants, gifts and trusts, and special program funds.

## RESEARCH FOCUS AREAS

Students may choose to focus on the areas of: nutrition, rumen microbiology, aquaculture, reproductive physiology–endocrinology, genetics, animal breeding, muscle biology, meat science, cell biology, animal health, immunity and toxicology, or international agriculture. Considerable opportunity for study exists in joint programs with

bacteriology, toxicology, biochemistry, the interdepartmental graduate program in nutritional sciences, genetics, endocrinology, reproductive physiology training program, food science, physiology, agricultural and applied economics, biometry, cellular and molecular biology, pharmaceutical sciences, chemical and biological engineering, bio engineering, comparative biosciences and anatomy.

The area of nutrition involves a joint degree with the Department of Animal Sciences and either the Department of Nutritional Sciences or the Department of Biochemistry. Usually, students work with professors from both departments so fundamental concepts complement practical applications. Ruminant nutrition candidates often minor or have a joint major in the Department of Bacteriology. Nutritional research ranges from field studies to laboratory biochemical studies.

The endocrinology–reproductive physiology area ranges from hormonal studies with livestock, primates, and laboratory animals to biochemical studies at the cellular level including stem cell biology. These studies include mechanism of gene action, physiological genetics, *in vitro* maturation, fertilization, embryo development, cloning and gene transfer, neuroendocrinology, and the environmental and genetic control of puberty and postpartum anestrus.

The genetics–animal breeding focus includes a variety of areas from immunogenetics and molecular genetics to quantitative and population genetics. The animal breeding program seeks to develop, evaluate, and apply classical, quantitative, biochemical, and physiological genetics toward improving animal breeding techniques. Studies range from theoretical considerations of quantitative genetics to laboratory experimentation on genetic controls of growth and reproduction, gene transfer and cloning to field experimentation on producer herds and flocks. Candidates may minor in several areas including genetics, statistics, physiology, or biochemistry.

Meat science and muscle biology studies probe the relationship of muscle structure, composition, and metabolism to growth, the contractile function, and meat quality. Similar studies related to adipose tissue are included. This fundamental research is applied to muscle efficiency and improved retail meat quality and composition.

The area of cellular biology, animal health, immunity, and toxicology includes basic research which seeks to develop an understanding of cellular/subcellular structure and function, cell regulation, and cell–cell interactions. Cell function, as it relates to mechanisms of immunity and the effects of natural and synthetic compounds, forms the basis for investigations using *in vitro* and *in vivo*, whole animal, model systems. Results of fundamental studies are directly applicable and coordinated with ongoing applied research programs in animal and human health.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

**MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT**

30 credits

**MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT**

16 credits

**MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT**

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>). Courses must be agreed upon by student's graduate committee members and approved by department certification committee.

**PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

For well-prepared advanced students, the program may accept prior graduate coursework from other institutions towards the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison towards fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

The program may decide to accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis).

UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

**CREDITS PER TERM ALLOWED**

15 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

**OVERALL GRADUATE GPA REQUIREMENT**

3.00

**OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

**PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

**ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

**ASSESSMENT AND EXAMINATIONS**

Contact the program for information on required assessments and examinations.

**TIME CONSTRAINTS**

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

**LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

**ADMISSIONS**

Students with satisfactory undergraduate training in any biological science including emphasis on basic science courses will have suitable backgrounds for graduate studies in animal science. Typically students admitted to the program have GPAs of 3.2 or higher; candidates with a lower GPA may be considered for admission under special circumstances. Admission decisions are based on academic record, GRE scores, three letters of recommendation, and Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS), if applicable.

Students are admitted to the department if a faculty member agrees to accept the candidate into his or her research group and to provide laboratory/desk space and research support, and upon the approval of the Animal Sciences Graduate Admissions Committee and the Graduate School. The faculty member also makes the decision of whether or not to offer a research assistantship to the candidate. International candidates in the master of science program rarely receive financial support.

**LEARNING OUTCOMES****KNOWLEDGE AND SKILLS**

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.

- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, and global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Schaefer (chair), Aberle, Albrecht, Claus, Cook, Crenshaw, Gianola, Khatib, Kirkpatrick, Parrish, Reed, Richards, Rosa, Thomas; Associate Professor Sindelar; Assistant Professors Berres, Fadl

## ANIMAL SCIENCES, PH.D.

The UW–Madison Department of Animal Sciences consistently ranks among the best Animal Sciences departments in the country and was recently ranked #1 by the *Chronicle of Higher Education*. Degrees include master of science (research or academic track) in animal sciences and doctor of philosophy with a major in animal sciences or in an interdisciplinary program.

The department emphasizes in vivo and in vitro studies that probe relationships at a fundamental mechanistic level as well as addressing current practical issues in animal agriculture. Studies may often employ the use of livestock or laboratory animals, or both, as subjects. Development of an individual course of study is flexible in order to meet the needs of students with varied interests. Graduates find employment in academic teaching and research, in professional veterinary or medical degree programs, in industrial research in the food and feed industries, in laboratory research programs with governmental and international agencies, private corporations, and in industrial or institutional management positions requiring a high level of scientific training.

The department is based in the Animal Sciences Building, which contains facilities for teaching and research, including a Computing and Biometry Laboratory and the Biological and Biomaterials Preparation Imaging and Characterization Facility. Nearby are the Livestock Laboratory, a state-of-the-art facility, and the Muscle Biology Laboratory. Teaching, research, and project assistantships are available to qualified students. Fellowships, scholarships, and traineeship awards are available from federal training programs, research grants, gifts and trusts, and special program funds.

## RESEARCH FOCUS AREAS

Students may choose to focus on the areas of: nutrition, rumen microbiology, aquaculture, reproductive physiology–endocrinology, genetics, animal breeding, muscle biology, meat science, cell biology, animal health, immunity and toxicology, or international agriculture. Considerable opportunity for study exists in joint programs with bacteriology, toxicology, biochemistry, the interdepartmental graduate

program in nutritional sciences, genetics, endocrinology, reproductive physiology training program, food science, physiology, agricultural and applied economics, biometry, cellular and molecular biology, pharmaceutical sciences, chemical and biological engineering, bio engineering, comparative biosciences and anatomy.

The area of nutrition involves a joint degree with the Department of Animal Sciences and either the Department of Nutritional Sciences or the Department of Biochemistry. Usually, students work with professors from both departments so fundamental concepts complement practical applications. Ruminant nutrition candidates often minor or have a joint major in the Department of Bacteriology. Nutritional research ranges from field studies to laboratory biochemical studies.

The endocrinology–reproductive physiology area ranges from hormonal studies with livestock, primates, and laboratory animals to biochemical studies at the cellular level including stem cell biology. These studies include mechanism of gene action, physiological genetics, in vitro maturation, fertilization, embryo development, cloning and gene transfer, neuroendocrinology, and the environmental and genetic control of puberty and postpartum anestrus.

The genetics–animal breeding focus includes a variety of areas from immunogenetics and molecular genetics to quantitative and population genetics. The animal breeding program seeks to develop, evaluate, and apply classical, quantitative, biochemical, and physiological genetics toward improving animal breeding techniques. Studies range from theoretical considerations of quantitative genetics to laboratory experimentation on genetic controls of growth and reproduction, gene transfer and cloning to field experimentation on producer herds and flocks. Candidates may minor in several areas including genetics, statistics, physiology, or biochemistry.

Meat science and muscle biology studies probe the relationship of muscle structure, composition, and metabolism to growth, the contractile function, and meat quality. Similar studies related to adipose tissue are included. This fundamental research is applied to muscle efficiency and improved retail meat quality and composition.

The area of cellular biology, animal health, immunity, and toxicology includes basic research which seeks to develop an understanding of cellular/subcellular structure and function, cell regulation, and cell–cell interactions. Cell function, as it relates to mechanisms of immunity and the effects of natural and synthetic compounds, forms the basis for investigations using in vitro and in vivo, whole animal, model systems. Results of fundamental studies are directly applicable and coordinated with ongoing applied research programs in animal and human health.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

**DOCTORAL DEGREES**

Ph.D.

**MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT**

51 credits

**MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT**

32 credits

**MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT**

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>). Courses must be agreed upon by student's graduate committee members and approved by department certification committee.

**PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

For well-prepared advanced students, the program may accept prior graduate coursework from other institutions towards the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison towards fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

The program may decide to accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis).

UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

**CREDITS PER TERM ALLOWED**

15 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

**DOCTORAL MINOR/BREADTH REQUIREMENTS**

Doctoral students must complete a doctoral minor.

**OVERALL GRADUATE GPA REQUIREMENT**

3.00

**OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

**PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

**ADVISOR**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

**ASSESSMENT AND EXAMINATIONS**

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

**TIME CONSTRAINTS**

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

**LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

**ADMISSIONS**

Students with satisfactory undergraduate training in any biological science including emphasis on basic science courses will have suitable backgrounds for graduate studies in animal science. Typically students admitted to the program have GPAs of 3.2 or higher; candidates with a lower GPA may be considered for admission under special circumstances. Admission decisions are based on academic record, GRE scores, three letters of recommendation, and Test of English as a Foreign



Language (TOEFL) or International English Language Testing System (IELTS), if applicable.

Students are admitted to the department if a faculty member agrees to accept the candidate into his or her research group and to provide laboratory/desk space and research support, and upon the approval of the Animal Sciences Graduate Admissions Committee and the Graduate School. The faculty member also makes the decision of whether or not to offer a research assistantship to the candidate. International candidates in the master of science program rarely receive financial support.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Schaefer (chair), Aberle, Albrecht, Claus, Cook, Crenshaw, Gianola, Khatib, Kirkpatrick, Parrish, Reed, Richards, Rosa, Thomas; Associate Professor Sindelar; Assistant Professors Berres, Fadl

# ANTHROPOLOGY

**Administrative Unit:** Anthropology

**College/School:** College of Letters & Science

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.A., M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

Graduate programs in the Department of Anthropology lead to the master of arts, master of science, and doctor of philosophy degrees with a major in anthropology. Concentrations within the major are available in archaeology, social and cultural anthropology, biological anthropology, or an intersectional degree track (see description below).

All programs assume that candidates have had general undergraduate training in the discipline equivalent to that required of an undergraduate major at UW–Madison. See Anthropology (<http://guide.wisc.edu/undergraduate/letters-science/anthropology/anthropology-ba/#requirementstext>).

## INTERSECTIONAL DEGREE TRACK

Occasionally students have special interests that can be pursued only through a combined program involving two or more of the subdisciplines within the program. Examples might include paleoanthropology, ethnoarchaeology, or biocultural anthropology. The department thus offers an intersectional degree track as an option for these special cases. Interested students should write a carefully prepared statement of intent at the time of application to graduate school. This area of study may take longer to complete, and it is strongly suggested that students who are interested in an intersectional program begin in one of the three major sections prior to making this commitment. Admission to the intersectional program requires prior approval by faculty in each section, and students should contact appropriate faculty before writing their statement.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Anthropology, Doctoral Minor (p. 58)
- Anthropology, M.A. (p. 58)
- Anthropology, M.S. (p. 60)
- Anthropology, Ph.D. (p. 61)

## PEOPLE

**Faculty:** See Anthropology (<http://anthropology.wisc.edu/people/#faculty>).

## ANTHROPOLOGY, DOCTORAL MINOR

### REQUIREMENTS

Graduate students in other fields who desire to elect anthropology as a minor subject should contact the chair of the department. As a rule, prior preparation must equal four courses in social science, of which two

should be in anthropology unless the area of concentration is to be a non-cultural field. Four courses must be taken, with the program of courses arranged to provide either

1. a general coverage of the field or
2. concentration in biological anthropology, cultural anthropology, or archaeology.

Successful completion of the course program will satisfy the minor requirement.

## PEOPLE

**Faculty:** See Anthropology (<http://anthropology.wisc.edu/people/#faculty>).

## ANTHROPOLOGY, M.A.

The primary focus of the anthropology graduate program is the doctoral degree. A master's degree is awarded in the process of pursuing the Ph.D., but students are not admitted for the sole purpose of obtaining a master's degree.

At the master's level, it is expected that candidates will begin to gain professional competence in a specialized field and will have the opportunity to explore a wide spectrum of interests within that field.

Programs for the master's degree in anthropology are intended to build professional competence in the field of concentration. Thorough undergraduate preparation is assumed. Basic training in archaeology, biological anthropology, and sociocultural anthropology, taken as an undergraduate major in anthropology, is recommended. Specific requirements vary for each concentration. Students are encouraged to consult Graduate Studies in Anthropology ([http://www.anthropology.wisc.edu/study\\_grad.php](http://www.anthropology.wisc.edu/study_grad.php)) for details on requirements for each concentration.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Degree coursework must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENT: UW-MADISON UNIVERSITY SPECIAL

With program approval students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the department for a list of required courses in each area of concentration.

## OVERALL GRADUATE GPA REQUIREMENT

A GPA of 3.5. No less than 3.0 during the first year; must have a 3.5 thereafter.

## OTHER GRADE REQUIREMENTS

Candidates may not have a GPA lower than 3.0 during the first year and must maintain a 3.5 GPA every year thereafter. Candidates may not carry more than 4 credits of Incomplete at any one time; credits of Incomplete over this limit are counted as grades of F for purposes of the GPA until removed.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

Progress criteria may be waived in special circumstances which must be stated in writing and approved by the appropriate section and signed by

the department chair. Candidates not making satisfactory progress will be dropped from the program.

## ADVISOR / COMMITTEE

Every graduate student will be assigned an advisor and a co-advisor. To ensure they are making satisfactory progress toward a degree, the Graduate School expects that students meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENTS AND EXAMINATIONS

Successful completion of a comprehensive master's exam or a Ph.D. qualifying examination is required.

## TIME CONSTRAINTS

Ph.D. qualifying examinations must be taken no later than the fourth semester and must be passed no later than the sixth semester.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D (p. 61).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in either biological, archaeological, or cultural anthropology.
- Identifies relevant data and assembles evidence pertaining to questions or challenges in one of the three subfields of anthropology taught in this department.
- Demonstrates understanding of the primary field of study in a historical, social, or global/transnational contexts as revealed in the qualifying exam.
- Selects and/or utilizes the most appropriate methodologies and practices in the sub-discipline.
- Evaluates or synthesizes information pertaining to questions or challenges in one of the three subfields of anthropology taught in this department.

### PROFESSIONAL CONDUCT

- Communicates clearly in ways appropriate to the field of study.

## ANTHROPOLOGY, M.S.

The primary focus of the anthropology graduate program is the doctoral degree. A master's degree is awarded in the process of pursuing the Ph.D., but students are not admitted for the sole purpose of obtaining a master's degree.

At the master's level, it is expected that candidates will begin to gain professional competence in a specialized field and will have the opportunity to explore a wide spectrum of interests within that field.

Programs for the master's degree in anthropology are intended to build professional competence in the field of concentration. Thorough undergraduate preparation is assumed. Basic training in archaeology, biological anthropology, and sociocultural anthropology, taken as an undergraduate major in anthropology, is recommended. Specific requirements vary for each concentration. Students are encouraged to consult Graduate Studies in Anthropology for details on requirements for each concentration.

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.A., M.S.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Degree coursework must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

#### PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL

With program approval students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the department for a list of required courses in each area of concentration.

#### OVERALL GRADUATE GPA REQUIREMENT

A GPA of 3.5. No less than 3.0 during the first year; must have a 3.5 thereafter.

#### OTHER GRADE REQUIREMENTS

Candidates may not have a GPA lower than 3.0 during the first year and must maintain a 3.5 GPA every year thereafter. Candidates may not carry more than 4 credits of Incomplete at any one time; credits of Incomplete over this limit are counted as grades of F for purposes of the GPA until removed.

#### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

Progress criteria may be waived in special circumstances which must be stated in writing and approved by the appropriate section and signed by the department chair. Candidates not making satisfactory progress will be dropped from the program.

#### ADVISOR / COMMITTEE

Every graduate student will be assigned an advisor and a co-advisor. To ensure they are making satisfactory progress toward a degree, the Graduate School expects that students meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

#### ASSESSMENTS AND EXAMINATIONS

Successful completion of a comprehensive master's exam or a Ph.D. qualifying examination is required.

## TIME CONSTRAINTS

Ph.D. qualifying examinations must be taken no later than the fourth semester and must be passed no later than the sixth semester.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D (p. 61).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in either biological, archaeological, or cultural anthropology.
- Identifies relevant data and assembles evidence pertaining to questions or challenges in one of the three subfields of anthropology taught in this department.
- Demonstrates understanding of the primary field of study in a historical, social, or global/transnational contexts as revealed in the qualifying exam.
- Selects and/or utilizes the most appropriate methodologies and practices in the sub-discipline.
- Evaluates or synthesizes information pertaining to questions or challenges in one of the three subfields of anthropology taught in this department.

### PROFESSIONAL CONDUCT

- Communicates clearly in ways appropriate to the field of study.

## ANTHROPOLOGY, PH.D.

The Ph.D. program assumes previous broad anthropological training in the undergraduate major and competence in a special field at the master's level (see Graduate Studies in Anthropology ([http://www.anthropology.wisc.edu/study\\_grad.php](http://www.anthropology.wisc.edu/study_grad.php))). Ph.D. programs are flexible in content and are constructed individually within the field of specialization by the candidate, in consultation with the appropriate faculty.

Students working toward the Ph.D. degree with a major in anthropology who prefer to pursue a program leading to a specialization in, for example, linguistic anthropology, may elect to take a joint major. The requirements for such candidates will be determined by the certification committee, which includes members of the participating departments, and must be approved by the Graduate School.

Within the doctoral program, students are expected to seek additional training in areas relating to the field of concentration; in most cases, such related subjects may be taken as the required minor program.

The archaeologist, for example, should elect course work in surveying, geology, cartography, zoology, history, and so on, depending on special interests. The biological anthropologist is expected to take work in comparative anatomy, human anatomy, genetics, and other biological sciences. The cultural or social anthropologist are encouraged to take further work in area studies, geography, history, history of science, linguistics, political science, psychology, sociology, and related fields.

The university and vicinity provide many opportunities and facilities for training and research including specialized area and language programs, accessible American Indian reservations, significant archaeological sites, and important archaeological collections. Anthropological fieldwork is conducted in various parts of the world, and there is normally an archaeological field school every second summer. The department has major laboratories for biological anthropology and archaeology, and collaborates with the Center for Climatic Research. The archaeology laboratories maintain comparative collections; microscopes; a thin-section lab; a lab of archaeological chemistry; computerized drafting equipment; and modern drafting, computing, and analytical equipment for research and teaching. Facilities for training and research in biological anthropology include well-equipped laboratories for forensic anthropology, human and other primate osteology anatomy, plant chemistry, stable isotope analysis, and bone histomorphometry, in addition to two large teaching laboratories.

## FUNDING

A limited number of teaching, research, and project assistantships are available annually, with occasional special research work for qualified individuals in both laboratory and field situations. Students who are planning to study a language taught at the UW-Madison are encouraged to contact the relevant Area Studies Program to explore the possibilities for a (FLAS) Foreign Language Area Studies Fellowship.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Degree coursework must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## **PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## **PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL**

With program approval students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## **CREDITS PER TERM ALLOWED**

15 credits

## **PROGRAM-SPECIFIC COURSES REQUIRED**

All sections (archaeology, biological, cultural) require one 300-level or above course in one of the other sections. Contact the department for a list of required courses in each area concentration.

## **DOCTORAL MINOR/BREADTH REQUIREMENTS**

All doctoral students are required to complete a minor.

## **OVERALL GRADUATE GPA REQUIREMENT**

A GPA of 3.5. No less than 3.0 during the first year; must have a 3.5 thereafter.

## **OTHER GRADE REQUIREMENTS**

Candidates may not have a GPA lower than 3.0 during the first year and must maintain a 3.5 GPA every year thereafter. Candidates may not carry more than 4 credits of Incomplete at any one time; credits of Incomplete over this limit are counted as grades of F for purposes of the GPA until removed.

## **PROBATION POLICY**

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

Progress criteria may be waived in special circumstances which must be stated in writing and approved by the appropriate section and signed by the department chair. Candidates not making satisfactory progress will be dropped from the program.

## **ADVISOR / COMMITTEE**

Every graduate student will be assigned an advisor and a co-advisor. To ensure they are making satisfactory progress toward a degree, the Graduate School expects that students meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## **ASSESSMENTS AND EXAMINATIONS**

Pass qualifying examinations no later than the sixth semester; take preliminary examinations no later than the third semester after passage of the qualifying examinations, and passed no later than the fifth semester.

## **TIME CONSTRAINTS**

Approval of a dissertation topic no later than the semester following passage of preliminary examinations is required.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence.

## **LANGUAGE REQUIREMENTS**

Language requirements are determined on an individual basis with the major professor and will depend on the area concentration within the department.

## **ADMISSIONS**

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program's website (<http://www.anthropology.wisc.edu/graduate-study/applying-to-our-graduate-program>) for details.

## **LEARNING OUTCOMES**

### **KNOWLEDGE AND SKILLS**

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within in either biological, archaeological or cultural anthropology in seminar papers and preliminary exam.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge in one of the three subfields above in the preliminary exam and dissertation.

## **PROFESSIONAL CONDUCT**

- We expect our graduate students to carry out original anthropological research and produce publishable work in the field including the writing of a dissertation; have a command of one or more foreign languages suited to their research when appropriate; actively compete for major intra- and extramural research grants; follow ethical principles of the discipline; and teach effectively as assistants to professors in the department.
- Communicate complex ideas in a clear and understandable manner.

# ART

**Administrative Unit:** Art

**College/School:** School of Education

**Admitting Plans:** M.A., MFA

**Degrees Offered:** M.A., MFA

**Minors and Certificates:** Doctoral Minor

The Department of Art offers an M.A. and MFA in Art. Within the MFA are three areas of specialization: Graphics, 2D, 3D/4D.

The graduate program in art is currently comprised of approximately 80 graduate students and 29 full-time faculty. The faculty is a distinguished group of professional artists who are active in the research and exhibition of their work and are also devoted teachers. An important strength of the graduate program lies in the breadth and diversity of its faculty. The program continues to grow and provides a wealth of artistic experiences for its students.

## GRAPHICS AREA

The graphics area consists of courses in relief print, serigraphy, intaglio, lithography, digital printmaking, paper making, book arts, photography, and graphic design. Each medium outfitted with a classroom of state-of-the-art print equipment for specific printing techniques. The area emphasizes the development of ideas and concepts while honing skill and technical command. Graphic design is defined in the broadest terms to include typography, book design and structure, artists books, paper making, illustration, production techniques, and computer typesetting.

## RELIEF PRINTING

The graduate relief printing area concentrates on all forms of relief printmaking and unique prints. Specialized courses are offered in woodcut, linocut, and other forms of raised surface printing. The interrelationship between relief printing, monotype/monoprints, hybrid print techniques, installation and those in typographic design and fine book reproduction is encouraged. The Relief lab is equipped with a Takach press, Vandorcook letter press, Charles Brand Press, and Reliance Press.

## SERIGRAPHY

Graduate serigraphy (screenprint) concentrates on formulating ideas and developing a personal visual language. The program utilizes the technical experience of the intro course (photo based, hand-cut and painted stencils, digital media) and develops the use of color, transparencies, and textural effects to realize print editions and unique prints that reflect creativity and technical competence. The use of the multiple in a contemporary context for installation-based artworks, multimedia, and dimensional prints is encouraged. The serigraphy lab is equipped with two large vacuum bases to print 4x5ft and 5x8ft, three medium size vacuum bases, two washout units, two light exposure tables, light tables, and a variety of screens.

## ETCHING/INTAGLIO

The etching/intaglio classes present this traditional process by laying the groundwork of basic technique to further understanding of its experimental possibilities. Five presses of varying size offer the capacity to explore many techniques, from traditional engraving and etching with hard, soft and granular grounds, to photo etching processes. There is an emphasis on color and multiple plate printing as well as monoprint

methods. Aside from methods, students do research into the history of the multiple and its current use in all areas of contemporary art. Enlargement of the medium into installation and use of nontraditional substrates and formats are expected. The use of digital technology such as digital camcorders, digital cameras and inkjet printing expand this medium's contemporary currency.

## LITHOGRAPHY

Lithography works are based in individual conceptual development while utilizing both stones and aluminum plates. Course work is geared to a high degree of craft and professionalism. All phases of lithography are stressed including direct, transfer and photo. The center of the program is a well-equipped workshop incorporating five presses, a very large graining sink, and more than 100 stones of varying sizes up to 30 inches by 40 inches.

## DIGITAL PRINTMAKING

Courses in digital print-production techniques provide graphics students with the necessary skills to take original art or digital media to printed output. Courses also provide a thorough explanation of the various systems, software, and hardware fundamentals involved in the integration of digital forms with etching, lithography, screen printing, photography, book arts, and graphic design. Print Production Techniques (Digital Printmaking) is also designed as an introductory course to ART 636 Computer Augmented Printmaking. As part of their course work, students will learn to utilize campus computer facilities as well as the Design Center or MERIT Lab, Print Production Studio, and the Digital Printmaking Center.

Topics covered will include an introduction to image acquisition for high resolution output, color proofing, imaging for photo plates and screens, introductory digital color-management and theory, printmaking and computer art history, and a survey of emerging print technologies including an expanded notion of electronic image presentation and distribution for the web. Simulations in virtual classrooms will be included as part of the learning environment. Student evaluations will be based on work produced for three critiques during the semester and a final portfolio review.

## GRAPHIC DESIGN AND TYPOGRAPHY

The courses in graphic design emphasize the process of visual communication of ideas and information, with attention to aesthetic considerations, techniques, and methods. Course work in letterpress and computer typesetting introduce historical and visual aspects of formal typography and serve to facilitate experimentation with the communicative properties of type. Practical study in this area involves the design and production of books, broadsides, brochures, and posters; the development and application of logotypes and design formats; and utilizing the facilities of letterpress, computer technologies, and graphic reproduction techniques. In addition, a focus on book structures and artists' books is provided.

## PHOTOGRAPHY

The photography area encourages students to pursue their advanced research in a multidisciplinary program. Students may work strictly in photography or in combination with other disciplines such as bookmaking, typography, printmaking, installation, video, or web-based work. There is a high teacher-to-student ratio in order to promote a supportive atmosphere for artist development. Students are given a studio with access to a private black & white darkroom and digital lab.



The general photography labs include facilities for digital, black & white, and alternative processes.

## PAPER MAKING

The courses in paper making are concerned with understanding the inherent materials used in the paper making processes as applied to traditional sheet forming and as they relate to other contemporary concepts in book arts, sculpture and drawing. New paper-making facilities were opened in May 2009 in the Art Lofts building.

## 2D AREA

### PAINTING, DRAWING, LIFE DRAWING, COLOR

The graduate 2D area emphasizes conceptual, formal, and material logic in the development of an individualized studio practice. This course of study promotes an understanding of contemporary and historical painting and drawing practice as well as the theoretical premises pertinent to furthering the student's intellectual and creative development.

Within the multidisciplinary department, the student is encouraged to access the broad variety of available facilities, equipment, and faculty fundamental to their continued artistic growth and specialization. Graduate students are provided with a private studio space.

## 3D/4D AREA

### SCULPTURE

The sculpture area offers a balance between techniques and concepts. Various forms of expression from object making, installation, and time-based media are encouraged. Issues of professional practice within the traditional art venues as well as in the larger public domain are addressed. Students are encouraged to develop their individual voice as artists, be part of a constructive community, and prepare to be creative citizens.

Facilities are available for most of the processes needed to produce sculpture: welding (including MIG and TIG), a foundry with a large alpine sculpture kiln for foundry molds and two gas melt furnaces, forging facilities, and shops for mixed media construction, casting and paint.

### WOODWORKING AND FURNITURE DESIGN

The wood/furniture area explores the technical and conceptual possibilities of woodworking and furniture design. The curriculum is project-based and teaches a full range of skills from design development through drawing and model building, as well as hand and machine based construction skills. Graduate students receive a work space in one of two private bench rooms attached to the machine room and have 24-hour access to the studio facility. The graduate program stresses advanced visual research and is highly flexible. Graduate students produce both functional and nonfunctional work that represents a wide spectrum of aesthetic perspectives. The context of a very large and diverse research university allows for effective support and mentoring of varied and wide-ranging approaches to art making. Experimentation and collaboration with other areas of the art department and the larger university are actively encouraged.

The wood/furniture facilities offer a state-of-the-art laboratory for working with wood. However, the program promotes and endorses a far-reaching exploration of traditional and cutting edge materials as well as newer digitally driven approaches to design and fabrication. Graduate studio research includes extensive one-on-one interaction with faculty from all areas of the art department. Additional feedback is provided through

group critiques by faculty, fellow students, guest critics, and visiting artists.

## CERAMICS

The ceramics area emphasizes a relationship between the field of ceramics and contemporary approaches to art making, theory, and criticism. The area offers a diverse approach to materials and processes, emphasizing work that is both technically proficient and conceptually diverse. Through advanced study, students will gain an understanding of the technical concerns involved in ceramic production such as clay and glaze calculation and mold making, while simultaneously developing the critical and historical skills necessary to apply those processes to finished works. The ceramics studio offers a wide assortment of equipment including a fully stocked supply of raw materials for clay and glaze mixing, digital scales and test kilns, electric wheels, extruders, slab rollers, an industrial spray booth, slip casting equipment, and a variety of both updraft gas and computer-controlled electric kilns. Graduate students receive private studio space, and are strongly encouraged to experiment and collaborate with other areas of the art department and university. Graduate-level research includes extensive one-on-one interaction with faculty from all areas of the department, with additional feedback provided through group critiques by faculty, fellow students, guest critics, and visiting artists.

## GLASS

Courses in glass stress proficiency in the basic manipulative processes inherent in the glass medium and encourage students to expand traditional boundaries to use old technologies along with new lighting technologies. The glass area has been one of the first tenants in the department's loft building. Facilities are available to accomplish most hot and cold working methods. Students, faculty, and lecturers often exhibit their work in public settings beyond the traditional gallery setting. The graduate studios are in the Art Lofts building, creating a lively environment for making and studying artwork.

## JEWELRY AND METALSMITHING

The metals area at UW-Madison has a long and distinguished history. The area is designed to challenge students to learn about the making of art through the specific materials, techniques, history, and cultural significance of the metalsmithing and jewelry fields. Technical proficiency is encouraged in the service of deep socially significant investigation and research. Analytical and critical thinking, historical responsibility, and theoretical awareness are explored in a seminar setting with metals faculty. Visiting artists offer lectures, demonstrations, and individual critiques with grad students that round out this rigorous and comprehensive area.

The metals studios occupy six rooms on the seventh floor of the Mosse Humanities Building. With approximately 4,500 square feet of instructional and studio space, these well-equipped facilities include acetylene, ox/acetylene and propane torches, annealing booths, centrifugal and vacuum casting equipment, enameling kilns and enamels, flexible shafts machines at every work station, a large selection of anvils, hammers and stakes for raising, forming and forging, hydraulic die forming, a gas forge, electroforming, manual and electric rolling mills, sand blaster, band and jig saws, lathes, milling machines and drill presses, a dedicated polishing room, spray etchers, sheet metal working equipment, mold making equipment, and a full compliment of hand tools. The resource center includes a computer, digital projector, photo equipment, and metals library.

## NON-STATIC FORMS

Courses in non-static forms include video and performance art. Students have access to media facilities throughout the university and are encouraged to participate in classes in non-static forms and to experiment with new media. Courses stress methods of exhibition, documentation, and distribution that are unique to the non-static media. Both individual and collaborative projects are possible, and frequent opportunities are available for students to exhibit or perform.

## DIGITAL MEDIA

The Digital Media area provides classes and faculty which allow graduate students to expand their use of digital media tools in the context of their own fine art practice. Classes offered cover a wide range of digital forms including digital imaging, web authoring, flash animation, video and audio manipulation and 3D modeling and animation using Rhino and Maya. All classes provide a balance of technical information on the relevant media and coverage of the historical and conceptual implications of their use in a fine art context. Students are encouraged to consider digital tools as part of an integrated art practice that is concept and content driven rather than media specific. As well as supporting students whose art work is presented in digital formats the Digital Media area provides opportunities for artists working in all media to incorporate new methodologies into their practice. In the department and wider campus both Mac and PC based facilities are available with specialized facilities provided for 3D animation, video editing, 3D printing (rapid prototyping) and large format 2D printing.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Art Education, M.A. (p. 66)
- Art, Doctoral Minor (p. 68)
- Art, M.A. (p. 68)
- Art, MFA (p. 72)

## PEOPLE

**Art Faculty:** Professors Rosenberg (chair), Buisch, Clark, Connors, Damer, Escalante, Georgiades, Gralnick, Hitchcock, Loeser, Miller, Mladenoff, Scheer, Simpson, Solien; Associate Professors Abdu'allah, Hilyard, Jones, Stonehouse; Assistant Professors Arthur, Bakkom, Barry, Clancy, Fitzsimons, Grimm, Lee, Mitchell, Smith

**Art Education Faculty:** Professors Loeser (chair), Buisch, Clark, Damer, Escalante, Feren, Georgiades, Gralnick, Hitchcock, Marschalek, Myers, Nelson, Scheer, Solien; Associate Professors Connors, Cridler, Hilyard, Marche, Miller, Mladenoff, Rosenberg, Sacaridiz, Simpson; Assistant Professors Bakkom, Fitzsimons, Hixson, Jones, McClure, Mitchell, Simpson, Smith, Stonehouse

## ART EDUCATION, M.A.

Graduate studies in art education are directed toward the continuing advancement of professionals, including elementary and secondary art teachers, university instructors and individuals from a variety of fields who seek to apply the theory and practice of art education in museums, businesses, learning centers, and alternative educational settings. The M.A. program is directed toward teachers who will return to K-12

education with advanced educational understandings and studio skills. The Ph.D. program prepares individuals for professional activities of research, publication, and teaching at the university level.

The program is characterized by intensive study in art and research in design education, information design, visual learning, curriculum, and cultural and historical contexts. Courses are geared toward the individual, with flexibility in meeting the student's needs, interests, professional development plans, and career options.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied towards the graduate degree credit requirement (15 of 30 credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept prior graduate coursework from other institutions towards the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW-Madison.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW-Madison towards fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

The program may decide to accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW-Madison coursework taken as a University

Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### KNOWLEDGE

- Students will demonstrate mastery in both the practice and broad understanding of major trends and the historical underpinnings, methodologies and techniques of contemporary visual art both orally and in writing.
- Students will demonstrate and develop critical thinking skills through required coursework and additional self selected courses within the department and across campus as well as through independent study with individual professors.
- Students will examine and evaluate specific examples of artistic and academic production as it relates to their area of artistic research.
- Students will gain exposure to wide set of professional resources and career opportunities.

#### RESEARCH

- Students will develop and complete original research that advances a field of study in at least one of the broad based discipline areas represented in the Department of Art.
- Students will evaluate and interpret professional writing from a variety of disciplines and use this information to develop a theoretical framework for their own artistic research.
- Students will learn to develop a rigorous and sustainable studio practice.
- Students will develop independent and self directed artistic research.
- Students will learn to develop the necessary materials to submit grant proposals to professional organizations.
- Students will develop a critical position and broad understanding of the artistic field that they most closely align with through their artistic research.

#### COMMUNICATION

- Effectively communicate to diverse audiences in writing, through oral presentations and discussions.
- Students will learn to write clear and concise statements articulating the direction and intention of their research for professional publications and exhibitions.
- Students will learn to present their research both informatively and articulately to diverse audiences through public lectures and symposiums.
- Students will learn to give and receive feedback orally and in writing.
- Students will be provided with opportunities to engage in public outreach, exhibitions and education in the community, state and nationally.

#### TEACHING EFFECTIVELY

- Teach a variety of courses within the Department of Art Foundations program for undergraduate students.
- Students will have the opportunity to apply for competitive positions as instructors of record for the following undergraduate courses in Drawing, Design, Digital Media and 20th century Art History and Contemporary Practices.
- Students will be provided opportunities for mentorship in teaching methods.

- Students will be provided opportunities for observation and shadowing full time teaching faculty in the Department of Art.

## PROFESSIONAL CONDUCT

- Career Preparation: Students will be provided with diverse training that will prepare them for a range of flexible and sustainable careers (e.g., academia, industry, community engagement, museum and gallery support services, art commerce and outreach at all levels).
- Students will develop broadly applicable skills in critical thinking and problem solving.
- Students will be provided with opportunities for leadership, art project management, and teamwork through collaboration, communication skills, and collaborations with academic and non-academic partners.

## ART, DOCTORAL MINOR

### ART, M.A.

The Department of Art offers an M.A. and MFA in Art. Within the MFA are three areas of specialization: Graphics, 2D, 3D/4D.

The graduate program in art is currently comprised of approximately 80 graduate students and 29 full-time faculty. The faculty is a distinguished group of professional artists who are active in the research and exhibition of their work and are also devoted teachers. An important strength of the graduate program lies in the breadth and diversity of its faculty. The program continues to grow and provides a wealth of artistic experiences for its students.

### GRAPHICS AREA

The graphics area consists of courses in relief print, serigraphy, intaglio, lithography, digital printmaking, paper making, book arts, photography, and graphic design. Each medium outfitted with a classroom of state-of-the-art print equipment for specific printing techniques. The area emphasizes the development of ideas and concepts while honing skill and technical command. Graphic design is defined in the broadest terms to include typography, book design and structure, artists books, paper making, illustration, production techniques, and computer typesetting.

#### Relief Printing

The graduate relief printing area concentrates on all forms of relief printmaking and unique prints. Specialized courses are offered in woodcut, linocut, and other forms of raised surface printing. The interrelationship between relief printing, monotype/monoprints, hybrid print techniques, installation and those in typographic design and fine book reproduction is encouraged. The Relief lab is equipped with a Takach press, Vandorcook letter press, Charles Brand Press, and Reliance Press.

#### Serigraphy

Graduate serigraphy (screenprint) concentrates on formulating ideas and developing a personal visual language. The program utilizes the technical experience of the intro course (photo based, hand-cut and painted stencils, digital media) and develops the use of color, transparencies, and textural effects to realize print editions and unique prints that reflect creativity and technical competence. The use of the multiple in a contemporary context for installation-based artworks, multimedia, and dimensional prints is encouraged. The serigraphy lab is equipped with two large vacuum bases to print 4x5ft and 5x8ft, three medium size

vacuum bases, two washout units, two light exposure tables, light tables, and a variety of screens.

#### Etching/Intaglio

The etching/intaglio classes present this traditional process by laying the groundwork of basic technique to further understanding of its experimental possibilities. Five presses of varying size offer the capacity to explore many techniques, from traditional engraving and etching with hard, soft and granular grounds, to photo etching processes. There is an emphasis on color and multiple plate printing as well as monoprint methods. Aside from methods, students do research into the history of the multiple and its current use in all areas of contemporary art. Enlargement of the medium into installation and use of nontraditional substrates and formats are expected. The use of digital technology such as digital camcorders, digital cameras and inkjet printing expand this medium's contemporary currency.

#### Lithography

Lithography works are based in individual conceptual development while utilizing both stones and aluminum plates. Course work is geared to a high degree of craft and professionalism. All phases of lithography are stressed including direct, transfer and photo. The center of the program is a well-equipped workshop incorporating five presses, a very large graining sink, and more than 100 stones of varying sizes up to 30 inches by 40 inches.

#### Digital Printmaking

Courses in digital print-production techniques provide graphics students with the necessary skills to take original art or digital media to printed output. Courses also provide a thorough explanation of the various systems, software, and hardware fundamentals involved in the integration of digital forms with etching, lithography, screen printing, photography, book arts, and graphic design. Print Production Techniques (Digital Printmaking) is also designed as an introductory course to ART 636 Computer Augmented Printmaking. As part of their course work, students will learn to utilize campus computer facilities as well as the Design Center or MERIT Lab, Print Production Studio, and the Digital Printmaking Center.

Topics covered will include an introduction to image acquisition for high resolution output, color proofing, imaging for photo plates and screens, introductory digital color-management and theory, printmaking and computer art history, and a survey of emerging print technologies including an expanded notion of electronic image presentation and distribution for the web. Simulations in virtual classrooms will be included as part of the learning environment. Student evaluations will be based on work produced for three critiques during the semester and a final portfolio review.

#### Graphic Design and Typography

The courses in graphic design emphasize the process of visual communication of ideas and information, with attention to aesthetic considerations, techniques, and methods. Course work in letterpress and computer typesetting introduce historical and visual aspects of formal typography and serve to facilitate experimentation with the communicative properties of type. Practical study in this area involves the design and production of books, broadsides, brochures, and posters; the development and application of logotypes and design formats; and utilizing the facilities of letterpress, computer technologies, and graphic reproduction techniques. In addition, a focus on book structures and artists' books is provided.

## Photography

The photography area encourages students to pursue their advanced research in a multidisciplinary program. Students may work strictly in photography or in combination with other disciplines such as bookmaking, typography, printmaking, installation, video, or web-based work. There is a high teacher-to-student ratio in order to promote a supportive atmosphere for artist development. Students are given a studio with access to a private black & white darkroom and digital lab. The general photography labs include facilities for digital, black & white, and alternative processes.

## Paper Making

The courses in paper making are concerned with understanding the inherent materials used in the paper making processes as applied to traditional sheet forming and as they relate to other contemporary concepts in book arts, sculpture and drawing. New paper-making facilities were opened in May 2009 in the Art Lofts building.

## 2D AREA

### Painting, Drawing, Life Drawing, Color

The graduate 2D area emphasizes conceptual, formal, and material logic in the development of an individualized studio practice. This course of study promotes an understanding of contemporary and historical painting and drawing practice as well as the theoretical premises pertinent to furthering the student's intellectual and creative development.

Within the multidisciplinary department, the student is encouraged to access the broad variety of available facilities, equipment, and faculty fundamental to their continued artistic growth and specialization. Graduate students are provided with a private studio space.

## 3D/4D AREA

### Sculpture

The sculpture area offers a balance between techniques and concepts. Various forms of expression from object making, installation, and time-based media are encouraged. Issues of professional practice within the traditional art venues as well as in the larger public domain are addressed. Students are encouraged to develop their individual voice as artists, be part of a constructive community, and prepare to be creative citizens.

Facilities are available for most of the processes needed to produce sculpture: welding (including MIG and TIG), a foundry with a large alpine sculpture kiln for foundry molds and two gas melt furnaces, forging facilities, and shops for mixed media construction, casting and paint.

### Woodworking and Furniture Design

The wood/furniture area explores the technical and conceptual possibilities of woodworking and furniture design. The curriculum is project-based and teaches a full range of skills from design development through drawing and model building, as well as hand and machine based construction skills. Graduate students receive a work space in one of two private bench rooms attached to the machine room and have 24-hour access to the studio facility. The graduate program stresses advanced visual research and is highly flexible. Graduate students produce both functional and nonfunctional work that represents a wide spectrum of aesthetic perspectives. The context of a very large and diverse research university allows for effective support and mentoring of varied and wide-ranging approaches to art making. Experimentation and collaboration with other areas of the art department and the larger university are actively encouraged.

The wood/furniture facilities offer a state-of-the-art laboratory for working with wood. However, the program promotes and endorses a far-reaching exploration of traditional and cutting edge materials as well as newer digitally driven approaches to design and fabrication. Graduate studio research includes extensive one-on-one interaction with faculty from all areas of the art department. Additional feedback is provided through group critiques by faculty, fellow students, guest critics, and visiting artists.

## Ceramics

The ceramics area emphasizes a relationship between the field of ceramics and contemporary approaches to art making, theory, and criticism. The area offers a diverse approach to materials and processes, emphasizing work that is both technically proficient and conceptually diverse. Through advanced study, students will gain an understanding of the technical concerns involved in ceramic production such as clay and glaze calculation and mold making, while simultaneously developing the critical and historical skills necessary to apply those processes to finished works. The ceramics studio offers a wide assortment of equipment including a fully stocked supply of raw materials for clay and glaze mixing, digital scales and test kilns, electric wheels, extruders, slab rollers, an industrial spray booth, slip casting equipment, and a variety of both updraft gas and computer-controlled electric kilns. Graduate students receive private studio space, and are strongly encouraged to experiment and collaborate with other areas of the art department and university. Graduate-level research includes extensive one-on-one interaction with faculty from all areas of the department, with additional feedback provided through group critiques by faculty, fellow students, guest critics, and visiting artists.

## Glass

Courses in glass stress proficiency in the basic manipulative processes inherent in the glass medium and encourage students to expand traditional boundaries to use old technologies along with new lighting technologies. The glass area has been one of the first tenants in the department's loft building. Facilities are available to accomplish most hot and cold working methods. Students, faculty, and lecturers often exhibit their work in public settings beyond the traditional gallery setting. The graduate studios are in the Art Lofts building, creating a lively environment for making and studying artwork.

## Jewelry and Metalsmithing

The metals area at UW-Madison has a long and distinguished history. The area is designed to challenge students to learn about the making of art through the specific materials, techniques, history, and cultural significance of the metalsmithing and jewelry fields. Technical proficiency is encouraged in the service of deep socially significant investigation and research. Analytical and critical thinking, historical responsibility, and theoretical awareness are explored in a seminar setting with metals faculty. Visiting artists offer lectures, demonstrations, and individual critiques with grad students that round out this rigorous and comprehensive area.

The metals studios occupy six rooms on the seventh floor of the Mosse Humanities Building. With approximately 4,500 square feet of instructional and studio space, these well-equipped facilities include acetylene, ox/acetylene and propane torches, annealing booths, centrifugal and vacuum casting equipment, enameling kilns and enamels, flexible shafts machines at every work station, a large selection of anvils, hammers and stakes for raising, forming and forging, hydraulic die forming, a gas forge, electroforming, manual and electric rolling mills, sand blaster, band and jig saws, lathes, milling machines and drill presses, a dedicated polishing room, spray etchers, sheet metal working

equipment, mold making equipment, and a full compliment of hand tools. The resource center includes a computer, digital projector, photo equipment, and metals library.

### Non-Static Forms

Courses in non-static forms include video and performance art. Students have access to media facilities throughout the university and are encouraged to participate in classes in non-static forms and to experiment with new media. Courses stress methods of exhibition, documentation, and distribution that are unique to the non-static media. Both individual and collaborative projects are possible, and frequent opportunities are available for students to exhibit or perform.

### Digital Media

The Digital Media area provides classes and faculty which allow graduate students to expand their use of digital media tools in the context of their own fine art practice. Classes offered cover a wide range of digital forms including digital imaging, web authoring, flash animation, video and audio manipulation and 3D modeling and animation using Rhino and Maya. All classes provide a balance of technical information on the relevant media and coverage of the historical and conceptual implications of their use in a fine art context. Students are encouraged to consider digital tools as part of an integrated art practice that is concept and content driven rather than media specific. As well as supporting students whose art work is presented in digital formats the Digital Media area provides opportunities for artists working in all media to incorporate new methodologies into their practice. In the department and wider campus both Mac and PC based facilities are available with specialized facilities provided for 3D animation, video editing, 3D printing (rapid prototyping) and large format 2D printing.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

42 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

33 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the degree coursework (21 credits out of 42 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison University Special students. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

12 credits per semester, 13 with petition

### PROGRAM-SPECIFIC COURSES REQUIRED

ART 700 Introduction to Graduate Studies in Art, one seminar course (ART 908 Seminar-Art or other), two art history courses above the 300 level, one outside academic (taken beyond the Art, Art History, and Design Studies Department), and one Colloquium (ART 508 Colloquium in Art)

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

No other specific grade requirements.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to grade standards but permitted to enroll; specific plan with dates and deadlines in place in regard to removal of probationary status)
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their major professor. Committee is formed by the end of the student's third semester for M.A. qualifiers in their fourth semester.

### ASSESSMENT AND EXAMINATIONS

At the end of the fourth semester, M.A. candidates will have an oral and written review of their creative work conducted by a committee of three tenure-track professors and an optional fourth, nonsigning member.

### TIME CONSTRAINTS

The M.A. show of creative work must be completed by the fourth semester of the candidate's studies.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

For up-to-date application instructions, see Degrees & Admission (<https://art.wisc.edu/graduate/graduate-application>) on the art department website.

To be admitted as a graduate student with full standing, an applicant must meet the minimum Graduate School requirements. The Graduate Record Exam (GRE) is not required for admission, however it may be useful for some fellowships. A limited number of applicants who do not meet the minimum grade point requirement but who provide other evidence of the capacity to do exemplary graduate work may be admitted on probation.

The following materials are required: the Graduate School application; three letters of recommendation from instructors or others who can evaluate potential for graduate study, an official transcript from each college/university attended, a brief statement of reasons for wanting to attend graduate school, a resume/cv, and a portfolio of up to 20 images of recent work in digital format, submitted to the art department's online portfolio site (for details, see Degrees & Admission (<https://art.wisc.edu/graduate/graduate-application>) on the department website). Applicants in video or performance only may present portfolios in either video or digital images with accompanying text. The portfolio should contain 20 images that show the work to its best advantage. Faculty members are interested in the ideas behind the work, as well as technical skills used in producing it.

The deadline for fall session is January 5. Visits from potential graduate students are always welcome. Department faculty teach Monday through Thursday and can show the facilities and talk about special areas of interest Department Faculty Resource (<https://art.wisc.edu/art/people/#https://artwiscedu/art/people>). Graduate student studios may also be visited.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### KNOWLEDGE

- Students will demonstrate mastery in both the practice and broad understanding of major trends and the historical underpinnings, methodologies and techniques of contemporary visual art both orally and in writing.
- Students will demonstrate and develop critical thinking skills through required coursework and additional self selected courses within the department and across campus as well as through independent study with individual professors.
- Students will examine and evaluate specific examples of artistic and academic production as it relates to their area of artistic research.

- Students will gain exposure to wide set of professional resources and career opportunities.

### RESEARCH

- Students will develop and complete original research that advances a field of study in at least one of the broad based discipline areas represented in the Department of Art.
- Students will evaluate and interpret professional writing from a variety of disciplines and use this information to develop a theoretical framework for their own artistic research.
- Students will learn to develop a rigorous and sustainable studio practice.
- Students will develop independent and self directed artistic research.
- Students will learn to develop the necessary materials to submit grant proposals to professional organizations.
- Students will develop a critical position and broad understanding of the artistic field that they most closely align with through their artistic research.
- Communication—effectively communicate to diverse audiences in writing, through oral presentations and discussions.
- Students will learn to write clear and concise statements articulating the direction and intention of their research for professional publications and exhibitions.
- Students will learn to present their research both informatively and articulately to diverse audiences through public lectures and symposiums.
- Students will learn to give and receive feedback orally and in writing.
- Students will be provided with opportunities to engage in public outreach, exhibitions and education in the community, state and nationally.
- Teaching effectively—teach a variety of courses within the Department of Art foundations program for undergraduate students.
- Students will have the opportunity to apply for competitive positions as instructors of record for the following undergraduate courses in drawing, design, digital media and 20th-century art history and contemporary practices.
- Students will be provided opportunities for mentorship in teaching methods.
- Students will be provided opportunities for observation and shadowing full time teaching faculty in the Department of Art.

### PROFESSIONAL CONDUCT

- Career Preparation
- Students will be provided with diverse training that will prepare them for a range of flexible and sustainable careers (e.g., academia, industry, community engagement, museum and gallery support services, art commerce and outreach at all levels).
- Students will develop broadly applicable skills in critical thinking and problem solving.
- Students will be provided with opportunities for leadership, art project management, and teamwork through collaboration, communication skills, and collaborations with academic and nonacademic partners.

## ART, MFA

The Department of Art offers an M.A. and MFA in Art. Within the MFA are three areas of specialization: Graphics, 2D, 3D/4D.

The graduate program in art is currently comprised of approximately 80 graduate students and 29 full-time faculty. The faculty is a distinguished group of professional artists who are active in the research and exhibition of their work and are also devoted teachers. An important strength of the graduate program lies in the breadth and diversity of its faculty. The program continues to grow and provides a wealth of artistic experiences for its students.

### GRAPHICS AREA

The graphics area consists of courses in relief print, serigraphy, intaglio, lithography, digital printmaking, paper making, book arts, photography, and graphic design. Each medium outfitted with a classroom of state-of-the-art print equipment for specific printing techniques. The area emphasizes the development of ideas and concepts while honing skill and technical command. Graphic design is defined in the broadest terms to include typography, book design and structure, artists books, paper making, illustration, production techniques, and computer typesetting.

#### Relief Printing

The graduate relief printing area concentrates on all forms of relief printmaking and unique prints. Specialized courses are offered in woodcut, linocut, and other forms of raised surface printing. The interrelationship between relief printing, monotype/monoprints, hybrid print techniques, installation and those in typographic design and fine book reproduction is encouraged. The Relief lab is equipped with a Takach press, Vandercook letter press, Charles Brand Press, and Reliance Press.

#### Serigraphy

Graduate serigraphy (screenprint) concentrates on formulating ideas and developing a personal visual language. The program utilizes the technical experience of the intro course (photo based, hand-cut and painted stencils, digital media) and develops the use of color, transparencies, and textural effects to realize print editions and unique prints that reflect creativity and technical competence. The use of the multiple in a contemporary context for installation-based artworks, multimedia, and dimensional prints is encouraged. The serigraphy lab is equipped with two large vacuum bases to print 4x5ft and 5x8ft, three medium size vacuum bases, two washout units, two light exposure tables, light tables, and a variety of screens.

#### Etching/Intaglio

The etching/intaglio classes present this traditional process by laying the groundwork of basic technique to further understanding of its experimental possibilities. Five presses of varying size offer the capacity to explore many techniques, from traditional engraving and etching with hard, soft and granular grounds, to photo etching processes. There is an emphasis on color and multiple plate printing as well as monoprint methods. Aside from methods, students do research into the history of the multiple and its current use in all areas of contemporary art. Enlargement of the medium into installation and use of nontraditional substrates and formats are expected. The use of digital technology such as digital camcorders, digital cameras and inkjet printing expand this medium's contemporary currency.

#### Lithography

Lithography works are based in individual conceptual development while utilizing both stones and aluminum plates. Course work is geared to a high degree of craft and professionalism. All phases of lithography are stressed including direct, transfer and photo. The center of the program is a well-equipped workshop incorporating five presses, a very large graining sink, and more than 100 stones of varying sizes up to 30 inches by 40 inches.

#### Digital Printmaking

Courses in digital print-production techniques provide graphics students with the necessary skills to take original art or digital media to printed output. Courses also provide a thorough explanation of the various systems, software, and hardware fundamentals involved in the integration of digital forms with etching, lithography, screen printing, photography, book arts, and graphic design. Print Production Techniques (Digital Printmaking) is also designed as an introductory course to ART 636 Computer Augmented Printmaking. As part of their course work, students will learn to utilize campus computer facilities as well as the Design Center or MERIT Lab, Print Production Studio, and the Digital Printmaking Center.

Topics covered will include an introduction to image acquisition for high resolution output, color proofing, imaging for photo plates and screens, introductory digital color-management and theory, printmaking and computer art history, and a survey of emerging print technologies including an expanded notion of electronic image presentation and distribution for the web. Simulations in virtual classrooms will be included as part of the learning environment. Student evaluations will be based on work produced for three critiques during the semester and a final portfolio review.

#### Graphic Design and Typography

The courses in graphic design emphasize the process of visual communication of ideas and information, with attention to aesthetic considerations, techniques, and methods. Course work in letterpress and computer typesetting introduce historical and visual aspects of formal typography and serve to facilitate experimentation with the communicative properties of type. Practical study in this area involves the design and production of books, broadsides, brochures, and posters; the development and application of logotypes and design formats; and utilizing the facilities of letterpress, computer technologies, and graphic reproduction techniques. In addition, a focus on book structures and artists' books is provided.

#### Photography

The photography area encourages students to pursue their advanced research in a multidisciplinary program. Students may work strictly in photography or in combination with other disciplines such as bookmaking, typography, printmaking, installation, video, or web-based work. There is a high teacher-to-student ratio in order to promote a supportive atmosphere for artist development. Students are given a studio with access to a private black & white darkroom and digital lab. The general photography labs include facilities for digital, black & white, and alternative processes.

#### Paper Making

The courses in paper making are concerned with understanding the inherent materials used in the paper making processes as applied to traditional sheet forming and as they relate to other contemporary concepts in book arts, sculpture and drawing. New paper-making facilities were opened in May 2009 in the Art Lofts building.



## 2D AREA

### Painting, Drawing, Life Drawing, Color

The graduate 2D area emphasizes conceptual, formal, and material logic in the development of an individualized studio practice. This course of study promotes an understanding of contemporary and historical painting and drawing practice as well as the theoretical premises pertinent to furthering the student's intellectual and creative development.

Within the multidisciplinary department, the student is encouraged to access the broad variety of available facilities, equipment, and faculty fundamental to their continued artistic growth and specialization. Graduate students are provided with a private studio space.

## 3D/4D AREA

### Sculpture

The sculpture area offers a balance between techniques and concepts. Various forms of expression from object making, installation, and time-based media are encouraged. Issues of professional practice within the traditional art venues as well as in the larger public domain are addressed. Students are encouraged to develop their individual voice as artists, be part of a constructive community, and prepare to be creative citizens.

Facilities are available for most of the processes needed to produce sculpture: welding (including MIG and TIG), a foundry with a large alpine sculpture kiln for foundry molds and two gas melt furnaces, forging facilities, and shops for mixed media construction, casting and paint.

### Woodworking and Furniture Design

The wood/furniture area explores the technical and conceptual possibilities of woodworking and furniture design. The curriculum is project-based and teaches a full range of skills from design development through drawing and model building, as well as hand and machine based construction skills. Graduate students receive a work space in one of two private bench rooms attached to the machine room and have 24-hour access to the studio facility. The graduate program stresses advanced visual research and is highly flexible. Graduate students produce both functional and nonfunctional work that represents a wide spectrum of aesthetic perspectives. The context of a very large and diverse research university allows for effective support and mentoring of varied and wide-ranging approaches to art making. Experimentation and collaboration with other areas of the art department and the larger university are actively encouraged.

The wood/furniture facilities offer a state-of-the-art laboratory for working with wood. However, the program promotes and endorses a far-reaching exploration of traditional and cutting edge materials as well as newer digitally driven approaches to design and fabrication. Graduate studio research includes extensive one-on-one interaction with faculty from all areas of the art department. Additional feedback is provided through group critiques by faculty, fellow students, guest critics, and visiting artists.

### Ceramics

The ceramics area emphasizes a relationship between the field of ceramics and contemporary approaches to art making, theory, and criticism. The area offers a diverse approach to materials and processes, emphasizing work that is both technically proficient and conceptually diverse. Through advanced study, students will gain an understanding of the technical concerns involved in ceramic production such as clay and glaze calculation and mold making, while simultaneously developing the critical and historical skills necessary to apply those processes

to finished works. The ceramics studio offers a wide assortment of equipment including a fully stocked supply of raw materials for clay and glaze mixing, digital scales and test kilns, electric wheels, extruders, slab rollers, an industrial spray booth, slip casting equipment, and a variety of both updraft gas and computer-controlled electric kilns. Graduate students receive private studio space, and are strongly encouraged to experiment and collaborate with other areas of the art department and university. Graduate-level research includes extensive one-on-one interaction with faculty from all areas of the department, with additional feedback provided through group critiques by faculty, fellow students, guest critics, and visiting artists.

### Glass

Courses in glass stress proficiency in the basic manipulative processes inherent in the glass medium and encourage students to expand traditional boundaries to use old technologies along with new lighting technologies. The glass area has been one of the first tenants in the department's loft building. Facilities are available to accomplish most hot and cold working methods. Students, faculty, and lecturers often exhibit their work in public settings beyond the traditional gallery setting. The graduate studios are in the Art Lofts building, creating a lively environment for making and studying artwork.

### Jewelry and Metalsmithing

The metals area at UW-Madison has a long and distinguished history. The area is designed to challenge students to learn about the making of art through the specific materials, techniques, history, and cultural significance of the metalsmithing and jewelry fields. Technical proficiency is encouraged in the service of deep socially significant investigation and research. Analytical and critical thinking, historical responsibility, and theoretical awareness are explored in a seminar setting with metals faculty. Visiting artists offer lectures, demonstrations, and individual critiques with grad students that round out this rigorous and comprehensive area.

The metals studios occupy six rooms on the seventh floor of the Mosse Humanities Building. With approximately 4,500 square feet of instructional and studio space, these well-equipped facilities include acetylene, ox/acteylene and propane torches, annealing booths, centrifugal and vacuum casting equipment, enameling kilns and enamels, flexible shafts machines at every work station, a large selection of anvils, hammers and stakes for raising, forming and forging, hydraulic die forming, a gas forge, electroforming, manual and electric rolling mills, sand blaster, band and jig saws, lathes, milling machines and drill presses, a dedicated polishing room, spray etchers, sheet metal working equipment, mold making equipment, and a full compliment of hand tools. The resource center includes a computer, digital projector, photo equipment, and metals library.

### Non-Static Forms

Courses in non-static forms include video and performance art. Students have access to media facilities throughout the university and are encouraged to participate in classes in non-static forms and to experiment with new media. Courses stress methods of exhibition, documentation, and distribution that are unique to the non-static media. Both individual and collaborative projects are possible, and frequent opportunities are available for students to exhibit or perform.

### Digital Media

The Digital Media area provides classes and faculty which allow graduate students to expand their use of digital media tools in the context of their own fine art practice. Classes offered cover a wide range of digital forms including digital imaging, web authoring, flash animation, video and audio

manipulation and 3D modeling and animation using Rhino and Maya. All classes provide a balance of technical information on the relevant media and coverage of the historical and conceptual implications of their use in a fine art context. Students are encouraged to consider digital tools as part of an integrated art practice that is concept and content driven rather than media specific. As well as supporting students whose art work is presented in digital formats the Digital Media area provides opportunities for artists working in all media to incorporate new methodologies into their practice. In the department and wider campus both Mac and PC based facilities are available with specialized facilities provided for 3D animation, video editing, 3D printing (rapid prototyping) and large format 2D printing.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER OF FINE ARTS DEGREE

MFA

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

60 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

24 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (30 credits out of 60 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special students. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

12 credits per semester, 13 with petition

### PROGRAM-SPECIFIC COURSES REQUIRED

MFA students must complete courses for MA and in addition, one seminar course (ART 908 Seminar-Art or other).

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

No other specific grade requirements.

### PROBATION POLICY

Student progress will be reviewed through coursework or at yearly meetings. If the advisor and graduate committee find that at the yearly meeting or at any other time that a student has failed to achieve satisfactory progress with academic or conduct expectations the student may be dismissed from the program.

Students placed on probation will be placed on probation for one semester and will be reviewed by the program steering committee following the probationary semester. Students placed on probation may be dismissed or allowed to continue based upon review of progress during the probationary semester.

### ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with the chair and members of their committee. The committee will meet at the end of the student's sixth semester to review work for the MFA degree.

### ASSESSMENT AND EXAMINATIONS

At the end of the sixth semester, MFA candidates will have an oral review of their creative work conducted by a committee of fourth tenure-track professors and an optional fifth, nonsigning member.

### TIME CONSTRAINTS

The MFA show of creative work must be completed by the sixth or seventh semester of the candidate's studies.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

For up-to-date application instructions, see Degrees & Admission (<https://art.wisc.edu/graduate/graduate-application>) on the art department website.

To be admitted as a graduate student with full standing, an applicant must meet the minimum Graduate School requirements. The Graduate Record Exam (GRE) is not required for admission, however it may be useful for some fellowships. A limited number of applicants who do not meet the minimum grade point requirement but who provide other evidence of the capacity to do exemplary graduate work may be admitted on probation.

The following materials are required: the Graduate School application; three letters of recommendation from instructors or others who can evaluate potential for graduate study, an official transcript from each college/university attended, a brief statement of reasons for wanting to attend graduate school, a resume/cv, and a portfolio of up to 20 images of recent work in digital format, submitted to the art department's online portfolio site (for details, see Degrees & Admission (<https://art.wisc.edu/graduate/graduate-application>) on the department website). Applicants in video or performance only may present portfolios in either video or digital images with accompanying text. The portfolio should contain 20 images that show the work to its best advantage. Faculty members are interested in the ideas behind the work, as well as technical skills used in producing it.

The deadline for fall session is January 5. Visits from potential graduate students are always welcome. Department faculty teach Monday through Thursday and can show the facilities and talk about special areas of interest Department Faculty Resource (<https://art.wisc.edu/art/people/#https://artwisc.edu/art/people>). Graduate student studios may also be visited.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- To facilitate a mastery in both the practice and understanding of major trends in contemporary art.
- To facilitate a broad and diverse understanding of the historical underpinnings, methodologies and techniques of contemporary visual art.
- To facilitate the development of critical thinking through coursework within the department and across campus as well as through independent study with individual professors.
- To facilitate exposure to a wide set of professional resources and career opportunities.
- To develop and complete original research that advances a field of study in at least one of the broad based discipline areas offered by our program.
- To attain the skill set necessary to evaluate and interpret professional writing from a variety of disciplines in order to develop a theoretical framework for their own artistic research.

### PROFESSIONAL CONDUCT

- To develop develop a rigorous and sustainable studio art practice both in and out of a studio context.

- To develop professional practices that facilitates a sustainable career in the arts; that allows students to present their research to diverse audiences through public lectures, symposia and exhibitions.

## PEOPLE

**Art Faculty:** Professors Rosenberg (chair), Buisch, Clark, Connors, Damer, Escalante, Georgiades, Gralnick, Hitchcock, Loeser, Miller, Mladenoff, Scheer, Simpson, Solien; Associate Professors Abdu'allah, Hilyard, Jones, Stonehouse; Assistant Professors Arthur, Bakkom, Barry, Clancy, Fitzsimons, Grimm, Lee, Mitchell, Smith

**Art Education Faculty:** Professors Loeser (chair), Buisch, Clark, Damer, Escalante, Feren, Georgiades, Gralnick, Hitchcock, Marschalek, Myers, Nelson, Scheer, Solien; Associate Professors Connors, Cridler, Hilyard, Marche, Miller, Mladenoff, Rosenberg, Sacaridiz, Simpson; Assistant Professors Bakkom, Fitzsimons, Hixson, Jones, McClure, Mitchell, Simpson, Smith, Stonehouse

## ART HISTORY

**Administrative Unit:** Art History

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A., Ph.D.

**Minors and Certificates:** Doctoral Minor in Art History; Doctoral Minor in Transdisciplinary Study of Visual Cultures; Graduate/Professional Certificate in Material Culture Studies; Graduate/Professional Certificate in Transdisciplinary Study of Visual Cultures

**Named Options:** Architectural History (Ph.D.)

The Department of Art History offers programs leading to the master of arts and the doctor of philosophy in art history with emphasis on African and African diaspora art, American material culture and vernacular architecture, ancient art and archaeology of the Mediterranean world, Chinese art and archaeology, Japanese art, medieval European art, Byzantine and Islamic art and architecture, early modern European art 19th-century art and print culture, modern and contemporary European and American art and visual culture. The department encourages the study of the global history of art, and material and visual culture while investigating works in all media from a wide range of periods and a variety of world cultures.

Students enjoy close interaction with their mentors and profit from superb resources for interdisciplinary research. Faculty members have international reputations in their specialties, regularly receive prestigious awards, lecture widely, and serve on major professional boards. Graduates of the department teach at the postsecondary level or pursue careers in museum and curatorial professions, private galleries and auction houses, library or archival work, architecture and historical preservation, and conservation.

The department is housed in the Conrad A. Elvehjem Building with the Chazen Museum of Art (<http://www.chazen.wisc.edu>), which has a broad historical collection with several areas of particular strength, an active acquisitions program, and facilities to host major traveling exhibitions and exhibition courses. Graduate students use these collections for research and publishing projects. They may also have the opportunity to work on exhibitions in special classes or as project assistants. The building is also home to the Kohler Art Library, which contains an excellent collection of published materials and full range of periodicals. The department possesses a large image collection and access to ArtStor.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Art History, Doctoral Minor (p. 76)
- Art History, M.A. (p. 76)
- Art History, Ph.D. (p. 78)
- Material Culture Studies, Graduate/Professional Certificate (p. 80)
- Transdisciplinary Study of Visual Cultures, Doctoral Minor (p. 80)
- Transdisciplinary Study of Visual Cultures, Graduate/Professional Certificate (p. 81)

### PEOPLE

**Faculty:** Professors Andrzejewski, Buenger, Cahill, Casid, Chopra, Dale, Drewal, Geiger, Marshall, Martin, Phillips (chair); Associate Professors McClure; Assistant Professors Brisman, Li, Pruitt

## ART HISTORY, DOCTORAL MINOR

### REQUIREMENTS

1. Plan a minor program consisting of a minimum 9 credits of graduate-level coursework. Three (3) credits of these may be an Independent Study course (ART HIST 799 Independent Study).
2. After the courses have been completed, bring the major department's Minor Agreement Form ([http://arthistory.wisc.edu/documents/Minor%20Form\\_Non-AH%20Ph.D.%20Students.pdf](http://arthistory.wisc.edu/documents/Minor%20Form_Non-AH%20Ph.D.%20Students.pdf)) to the art history graduate coordinator, department chair, or graduate administrator and have it signed.
3. Return the Minor Agreement Form to the major department to prepare any requisite warrants. A copy will be kept in the art history department.

See the program website (<http://arthistory.wisc.edu/phd-minor-in-art-history.htm>) for more information.

### PEOPLE

**Faculty:** Professors Andrzejewski, Buenger, Cahill, Casid, Chopra, Dale, Drewal, Geiger, Marshall, Martin, Phillips (chair); Associate Professors McClure; Assistant Professors Brisman, Li, Pruitt

## ART HISTORY, M.A.

The Department of Art History offers programs leading to the master of arts and the doctor of philosophy in art history with emphasis on African and African diaspora art, American material culture and vernacular architecture, ancient art and archaeology of the Mediterranean world, Chinese art and archaeology, Japanese art, medieval European art, Byzantine and Islamic art and architecture, early modern European art 19th-century art and print culture, modern and contemporary European and American art and visual culture. The department encourages the study of the global history of art, and material and visual culture while investigating works in all media from a wide range of periods and a variety of world cultures.

Students enjoy close interaction with their mentors and profit from superb resources for interdisciplinary research. Faculty members have international reputations in their specialties, regularly receive prestigious awards, lecture widely, and serve on major professional boards. Graduates of the department teach at the postsecondary level or pursue careers in museum and curatorial professions, private galleries and auction houses, library or archival work, architecture and historical preservation, and conservation.

The department is housed in the Conrad A. Elvehjem Building with the Chazen Museum of Art (<http://www.chazen.wisc.edu>), which has a broad historical collection with several areas of particular strength, an active

acquisitions program, and facilities to host major traveling exhibitions and exhibition courses. Graduate students use these collections for research and publishing projects. They may also have the opportunity to work on exhibitions in special classes or as project assistants. The building is also home to the Kohler Art Library, which contains an excellent collection of published materials and full range of periodicals. The department possesses a large image collection and access to ArtStor.

## FUNDING

Financial aid is normally reserved for students in the Ph.D. program. The university offers fellowships and scholarships for which graduate students in art history may compete. The department awards the Margaret Davison Shorger Fellowship for the study of Italian art, the Charles C. Killin Wisconsin Distinguished Graduate Fellowship in East Asian Art, and the Chipstone/James Watrous Wisconsin Distinguished Graduate Fellowship in American Material Culture. Research travel is also supported by the Shirley L. and Dr. William Fritz Mueller Art History Graduate Student Fund and the Ray Reider Golden Art History Fund, and the Joan Mirviss Fund for Japanese art. The department awards travel grants for students delivering papers at major conferences and annually appoints five to six graduate students as teaching or project assistants. Individual faculty may also offer one- or two-semester project assistantships in connection with specific research projects. In addition, the department nominates candidates for fellowships administered outside the department and the university.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.A., with available Asian track

M.A. double degree with Library and Information Studies M.A.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

M.A.—30 credits

M.A.—Asian track—30 credits

M.A. double degree with Library and Information Studies M.A.—64 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

M.A.—24 credits

M.A.—Asian track—24 credits

M.A. double degree with Library and Information Studies M.A.—20 credits in art history

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

M.A.—half of degree coursework (15 out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

Art History M.A. and Library & Information Studies M.A. double degree—half of degree coursework (32 credits out of 64 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to the master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Allowed up to 7 credits numbered 700 or above, and graduate level courses ART HIST 601 Introduction to Museum Studies I, ART HIST 602 Introduction to Museum Studies II and ART HIST/HISTORY/JOURN/ L I S 650 History of Books and Print Culture in Europe and North America.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW-Madison University Special students. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

12 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

ART HIST 701 Practicum in Art History: Bibliography, Historiography, Methods

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

No other grade requirements.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their advisor, scheduled by December 17 and completed by April 30. Failure to do so will result in a hold being placed on the student's registration.

## ASSESSMENTS AND EXAMINATIONS

No formal examination required.

M.A. thesis

## TIME CONSTRAINTS

The thesis, written in consultation with the major professor, must be completed no later than two semesters after thesis work begins.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Reading competency in one language.

## ADMISSIONS

While students may pursue a stand-alone M.A., those who wish to pursue a Ph.D. should apply directly to that program. Admission to either program is offered to applicants who have an outstanding undergraduate record of academic achievement. The successful applicant typically presents both a compelling statement of purpose for graduate studies and an advanced research paper. To be considered for admission, applicants must have taken the GRE recently (within five years of their application deadline). To be competitive in some subfields, applicants should have training in at least one foreign language. Applicants are encouraged to contact prospective faculty advisors for more details. Non-native English speakers must present TOEFL or IELTS scores.

Admission to the Asian M.A. track (Chinese or Japanese art) is offered to applicants who have similar qualifications and training, but with an East Asian emphasis and demonstrated skills in the East Asian language appropriate to the intended field of specialization.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Mastery of techniques for visual analysis (examining features such as materials, proportion, light, color, form and narrative structure) of single images and for comparative analysis of multiple images and objects.
- Advanced proficiency in interpreting images/objects in ways that take into account the historical contexts in which they were produced and received.
- In-depth knowledge across a range of time and geography to reach an understanding of the ways in which art and its meaning are rooted in culture.
- Advanced ability to locate and enlist research resources in both print and digital form and assess the strengths and weaknesses of various types of resources.

- Advanced knowledge and skills necessary to interpret images/objects in ways that consider a variety of theoretical perspectives.
- Ability to assess and critique complex scholarly arguments and evaluate the strength of the visual and textual evidence presented.

## PROFESSIONAL CONDUCT

- Advanced skills in effective and impactful communication in both written and oral form in ways that acknowledge diverse audiences in an increasingly global society.
- Skills in public engagement such that our students are able to effectively communicate complex ideas to a lay public in written, oral, and digital form in keeping with the Wisconsin Idea.

## PEOPLE

**Faculty:** Professors Andrzejewski, Buenger, Cahill, Casid, Chopra, Dale, Drewal, Geiger, Marshall, Martin, Phillips (chair); Associate Professors McClure; Assistant Professors Brisman, Li, Pruitt

## ART HISTORY, PH.D.

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Students enjoy close interaction with their mentors and profit from superb resources for interdisciplinary research. Faculty members have international reputations in their specialties, regularly receive prestigious awards, lecture widely, and serve on major professional boards. Graduates of the department teach at the postsecondary level or pursue careers in museum and curatorial professions, private galleries and auction houses, library or archival work, architecture and historical preservation, and conservation.

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## FUNDING

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Margaret Davison Shorger Fellowship for the study of Italian art, the Charles C. Killin Wisconsin Distinguished Graduate Fellowship in East Asian Art, and the Chipstone/James Watrous Wisconsin Distinguished Graduate Fellowship in American Material Culture. Research travel is also supported by the Shirley L. and Dr. William Fritz Mueller Art History Graduate Student Fund and the Ray Reider Golden Art History Fund, and the Joan Mirviss Fund for Japanese art. The department awards travel grants for students delivering papers at major conferences and annually appoints five to six graduate students as teaching or project assistants. Individual faculty may also offer one- or two-semester project assistantships in connection with specific research projects. In addition, the department nominates candidates for fellowships administered outside the department and the university.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### DOCTORAL DEGREES

Ph.D., with available named option in Architectural History

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

Ph.D.—51 credits

Ph.D.—named option Architectural History—51 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

Ph.D.—32 credits

Ph.D.—named option Architectural History—32 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of Ph.D. coursework (26 out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Ph.D.—With program approval, students are allowed to count no more than 21 credits of graduate work from other institutions. Coursework earned ten years or more prior to admission to the doctoral degree is not allowed to satisfy requirements.

Ph.D.—named option Architectural History—designated courses taught by BLC-affiliated faculty at UW–Milwaukee.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Ph.D.—allowed up to 7 credits numbered 700 or above, and graduate level courses ART HIST 601 Introduction to Museum Studies I, ART HIST 602 Introduction to Museum Studies II and ART HIST/HISTORY/JOURN/L I S 650 History of Books and Print Culture in Europe and North America.

Ph.D.—named option Architectural History—no prior coursework from UW–Madison undergraduate career may count toward requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 600 or above taken as a UW–Madison University Special students. Coursework earned ten or more years prior to admission to a master's degree is not allowed to satisfy requirements.

Ph.D.—named option Architectural History—no prior coursework from UW–Madison Special student career may count toward requirements.

#### CREDITS PER TERM ALLOWED

12 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

ART HIST 701 Practicum in Art History: Bibliography, Historiography, Methods

Ph.D.—named option Architectural History—ART HIST 701, ART HIST 449 Topics in Architectural History Architectural Field School; ART HIST 867 Seminar-American Architecture

#### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

#### OTHER GRADE REQUIREMENTS

No other grade requirements.

#### PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

#### ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their thesis committee after passing the Preliminary Examination.

#### ASSESSMENTS AND EXAMINATIONS

Doctoral students must submit a dissertation prospectus.

Doctoral students must pass a written and an oral exam prior to becoming dissertators.

#### TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students

completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Reading competency in at least two languages (additional language requirements may pertain to some fields).

## ADMISSIONS

While students may pursue a stand-alone M.A., those who wish to pursue a Ph.D. should apply directly to that program. Admission to either program is offered to applicants who have an outstanding undergraduate record of academic achievement. The successful applicant typically presents both a compelling statement of purpose for graduate studies and an advanced research paper. To be considered for admission, applicants must have taken the GRE recently (within five years of their application deadline). To be competitive in some subfields, applicants should have training in at least one foreign language. Applicants are encouraged to contact prospective faculty advisors for more details. Non-native English speakers must present TOEFL or IELTS scores.

Admission to the Asian M.A. track (Chinese or Japanese art) is offered to applicants who have similar qualifications and training, but with an East Asian emphasis and demonstrated skills in the East Asian language appropriate to the intended field of specialization.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Shows professional-level mastery of the skills acquired at earlier stages (visual analysis, contextual interpretation, research methods, evaluation of arguments, application of varied theoretical perspectives).
- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of art history (including visual culture and material culture).
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of art history/visual culture/material culture.
- Conducts research and produces scholarship that makes a substantive contribution to the field and to interdisciplinary enquiry.
- Demonstrates breadth within their learning experiences.
- Shows advanced skills in effective and impactful communication in both written and oral form in ways that acknowledge diverse audiences in an increasingly global society.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.
- Prepares to be an educator who uses the latest pedagogies such that one can compellingly and thoroughly teach, motivate, and shape the next generation of global citizens in the arts and sciences with a focus on the visual.

### ADDITIONAL LEARNING GOALS

- Foster skills in public engagement such that our students are able to effectively communicate complex ideas about art, visual culture and material culture to a lay public in written, oral, and digital form in keeping with the Wisconsin Idea.

- Is able to prompt and participate in interdisciplinary dialogue with scholars and the public about the power of images and objects both historically and in the present, to persuade, critique, and even coerce.

## PEOPLE

**Faculty:** Professors Andrzejewski, Buenger, Cahill, Casid, Chopra, Dale, Drewal, Geiger, Marshall, Martin, Phillips (chair); Associate Professors McClure; Assistant Professors Brisman, Li, Pruitt

## MATERIAL CULTURE STUDIES, GRADUATE/PROFESSIONAL CERTIFICATE

The primary focus of the certificate in material culture studies is to teach different methods and approaches for studying objects as evidence. Those in the program seek to understand how historical, cultural, behavioral, and social meanings can be revealed and studied through objects as well as how material things in turn shape human experience. Students learn ideas, methods, skills and practices that prepare them for careers in higher education, museums, historical societies, architecture and design, product design, advertising, historic preservation, and journalism. Another goal is to introduce a variety of professional career paths for those interested in the relationship between objects, history, and culture. Internships at local museums, historical societies, and other organizations as well as class field trips and activities allow students to bridge the academic and professional worlds.

## PEOPLE

**Materials Studies Culture Core Faculty:** Professors Martin (Art History), Schroeder (Anthropology); Associate Professors Allen (Scandinavian Studies), Andrzejewski (Art History), Aylward (Classics), Gilmore (Landscape Architecture/Folklore Studies), Nelson (Design Studies); Assistant Professors Li (Art History), Penick (Design Studies), Pruitt (Art History).

**Materials Studies Culture Affiliate Faculty:** Professors Bernstein (English), Buenger (Art History), Cahill (Art History), Cook (Music), Dale (Art History), Drewal (Art History), Enstad (History), Geiger (Art History), Kenoyer (Anthropology), Leary (Folklore Studies), Loeser (Art), Nyhart (History of Science), Phillips (Art History), Vaughn (Journalism and Mass Communication); Associate Professors Chopra (Art History), Dennis (Landscape Architecture), Sacaridiz (Art), Schatzberg (History of Science); Assistant Professor Shin (Design Studies)

## TRANSDISCIPLINARY STUDY OF VISUAL CULTURES, DOCTORAL MINOR

### REQUIREMENTS

The designated doctoral minor in the Transdisciplinary Study of Visual Cultures is intended for Ph.D. students from across the university who desire transdisciplinary training in the study of visual cultures.



The minor is awarded upon successful completion of 9 graduate-level credits in a combination of required and elective coursework, with a GPA of 3.0 (4.0 basis). Required coursework consists of ART HIST/AFROAMER 801 Historiography, Theory and Methods in Visual Culture; ART HIST/AFROAMER 802 Visual Cultures: Topics in Visual Cultures; and Independent Study in Visual Cultures. Elective coursework consists of at least one 3-credit course to be selected, in consultation with a program faculty advisor, from a wide range of crosslisted and "meets with" courses offered by program faculty in numerous programs and departments. For a listing of courses and more information, please visit the program website (<http://www.visualcultures.wisc.edu>) or office.

## PEOPLE

**Faculty:** A list of participating faculty may be found on the program website (<http://www.visualculture.wisc.edu/faculty.htm>).

## TRANSDISCIPLINARY STUDY OF VISUAL CULTURES, GRADUATE/ PROFESSIONAL CERTIFICATE

### REQUIREMENTS

The graduate/professional certificate in the transdisciplinary study of visual cultures is intended for master's-degree-level students (i.e., M.A. and MFA candidates) from across the university who desire transdisciplinary training in the study of visual cultures. The certificate is awarded upon successful completion of 9 graduate-level credits in a combination of required and elective coursework, with a GPA of 3.0 (4.0 basis). Required coursework consists of ART HIST/AFROAMER 801 Historiography, Theory and Methods in Visual Culture; ART HIST/AFROAMER 802 Visual Cultures: Topics in Visual Cultures; and Independent Study in Visual Cultures. Elective coursework consists of at least one 3-credit course to be selected, in consultation with a program faculty advisor, from a wide range of crosslisted and "meets with" courses offered by program faculty in numerous programs and departments. For a listing of courses and more information, please visit the program website (<http://www.visualcultures.wisc.edu>) or office.

## PEOPLE

**Faculty:** A list of participating faculty may be found on the program website (<http://www.visualculture.wisc.edu/faculty.htm>).

# ASIAN LANGUAGES AND CULTURES

**Administrative Unit:** Asian Languages and Cultures

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A. in Chinese; M.A. in Japanese; M.A. in Languages and Cultures of Asia; Ph.D. in Chinese; Ph.D. in Japanese; Ph.D. in Languages and Cultures of Asia

**Minors and Certificates:** Doctoral Minor in Chinese; Doctoral Minor in Japanese; Doctoral Minor in Languages and Cultures of Asia

**Named Options in Languages and Cultures of Asia:** Languages and Literature (Ph.D.); Civilizations and Cultures (Ph.D.); Religious Studies (Ph.D.)

UW–Madison offers M.A. and Ph.D. degrees in Chinese and Japanese—specializing in linguistics, literature and culture, or thought—and in Languages and Cultures of Asia.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE PROFESSIONAL/CERTIFICATES

- Chinese, Doctoral Minor (p. 83)
- Chinese, M.A. (p. 83)
- Chinese, Ph.D. (p. 86)
- Japanese, Doctoral Minor (p. 88)
- Japanese, M.A. (p. 89)
- Japanese, Ph.D. (p. 91)
- Languages and Cultures of Asia, Doctoral Minor (p. 93)
- Languages and Cultures of Asia, M.A. (p. 94)
- Languages and Cultures of Asia, Ph.D. (p. 96)

## PEOPLE

### FACULTY

Professors Bühnemann, Dunne, Huang, Huntington, Kern, McGloin, Mori (chair), Nienhauser, Zhang; Associate Professors Cerulli, D'Etcheverry, Geyer, Lim, Meulenbeld, Ridgely; Assistant Professors Yang, Zhu (Diversity Liaison); Faculty Associate Barnard, Nakakubo

### EAST ASIA

Charo D'Etcheverry (<http://alc.wisc.edu/about/faculty/charo-detcheverry>) (Associate Professor). Area: Classical Japanese Literature

Naomi Geyer (<http://alc.wisc.edu/about/faculty/naomi-geyer>) (Associate Professor). Area: Japanese Language

Nicole Huang (<http://alc.wisc.edu/about/faculty/nicole-huang>) (Professor). Area: Transcultural East Asia; 20th century Chinese and Taiwanese Literature

Rania Huntington (<http://alc.wisc.edu/about/faculty/rania-huntington>) (Professor). Area: Ming and Qing Narrative and Drama, Chinese Literature of the weird and supernatural

Adam L. Kern (<http://alc.wisc.edu/about/faculty/adam-l-kern>) (Professor). Area: Popular Literature, Culture, Poetry, Theater, and Visual Culture of early modern-modern Japan.

Byung-jin Lim (<http://alc.wisc.edu/about/faculty/byung-jin-lim>) (Associate Professor). Area: Korean Language and Linguistics, Second / Foreign Language Acquisition, Korean Language Textbook Development

Naomi McGloin (<http://alc.wisc.edu/about/faculty/naomi-mcgloin>) (Professor). Area: Japanese Language and Linguistics

Mark Meulenbeld (<http://alc.wisc.edu/about/faculty/william-nienhauser>) (Associate Professor). Area: Daoism, Chinese Religion and Literature

Junko Mori (<http://alc.wisc.edu/about/faculty/steve-ridgely>) (Professor). Area: Japanese Linguistics, Applied Linguistics, Sociolinguistics

Takako Nakakubo (<http://alc.wisc.edu/about/faculty/takako-nakakubo>) (Faculty Associate). Area: Second Language Acquisition of Japanese, Japanese Pedagogy

William Nienhauser (<http://alc.wisc.edu/about/faculty/william-nienhauser>) (Professor). Area: Early Traditional Chinese Fiction and History; early poetry (Du Fu and Tao Qian)

Steve Ridgely (<http://alc.wisc.edu/about/faculty/steve-ridgely>) (Associate Professor). Area: Modern Japanese Literature, Pop culture, TransAsian studies

Bei Yang (<http://alc.wisc.edu/about/faculty/bei-yang>) (Assistant Professor). Area: Second Language Acquisition, Chinese Languages and Linguistics

Hongming Zhang (<http://alc.wisc.edu/about/faculty/hongming-zhang>) (Professor). Area: Chinese Linguistics; History of Chinese Language; Teaching Chinese as a Second Language

Weihua Zhu (<http://alc.wisc.edu/about/faculty/weihua-zhu>) (Assistant Professor). Area: Chinese Language, Pedagogy and Second Language Acquisition

### SOUTH ASIA

Gudrun Bühnemann (<http://alc.wisc.edu/about/faculty/gudrun-b%C3%BChnemann>) (Professor). Area: Sanskrit Language and Literature; Buddhism in India and Nepal; Hinduism; Tantrism; Yoga Studies

Anthony Cerulli (<http://alc.wisc.edu/about/faculty/anthony-cerulli>) (Associate Professor). Area: Theory and Method in the Study of Religion in South Asia; History of Medicine in India; Sanskrit Language and Literature; Kerala History and Culture; Malayalam Language.

John D. Dunne (<http://alc.wisc.edu/about/faculty/john-d-dunne>) (Professor). Area: Buddhist Philosophy and Contemplative Practice; Religious Studies; Cognitive Science of Religion

### SOUTHEAST ASIA

Erlin Barnard (<http://alc.wisc.edu/about/faculty/erlin-barnard>) (Faculty Associate) Area: Indonesian Language, Language Pedagogy; Materials Development; Second Language Acquisition

## LANGUAGE INSTRUCTORS

Language instructors (<http://alc.wisc.edu/about/language-instructors>) are an integral part of our department, teaching more than 14 languages during the academic year from East (Chinese, Japanese, Korean), South

(Hindi, Persian, Sanskrit, Tibetan, Urdu), Southeast (Burmese, Filipino, Hmong, Indonesian, Thai, Vietnamese) Asian Languages.

## GRADUATE ADVISOR

Undergraduate Advisor:  
email Rachel Weiss (rweiss@wisc.edu)  
1244 Van Hise Hall  
608-890-0138

## CHINESE, DOCTORAL MINOR

### REQUIREMENTS

Students from other graduate programs intending to take a doctoral minor in Chinese should consult the Chinese graduate program director. For the minor, at least 12 credits in graduate-level courses are required (400 level or above; certain 300-level courses are accepted with the prior consent of the program).

### PEOPLE

## FACULTY

Professors Bühnemann, Dunne, Huang, Huntington, Kern, McGloin, Mori (chair), Nienhauser, Zhang; Associate Professors Cerulli, D'Etcheverry, Geyer, Lim, Meulenbeld, Ridgely; Assistant Professors Yang, Zhu (Diversity Liaison); Faculty Associate Barnard, Nakakubo

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Naomi McGloin (<http://alc.wisc.edu/about/faculty/naomi-mcgloin>) (Professor). Area: Japanese Language and Linguistics

Mark Meulenbeld (<http://alc.wisc.edu/about/faculty/william-nienhauser>) (Associate Professor). Area: Daoism, Chinese Religion and Literature

Junko Mori (<http://alc.wisc.edu/about/faculty/steve-ridgely>) (Professor). Area: Japanese Linguistics, Applied Linguistics, Sociolinguistics

Takako Nakakubo (<http://alc.wisc.edu/about/faculty/takako-nakakubo>) (Faculty Associate). Area: Second Language Acquisition of Japanese, Japanese Pedagogy

William Nienhauser (<http://alc.wisc.edu/about/faculty/william-nienhauser>) (Professor). Area: Early Traditional Chinese Fiction and History; early poetry (Du Fu and Tao Qian)

Steve Ridgely (<http://alc.wisc.edu/about/faculty/steve-ridgely>) (Associate Professor). Area: Modern Japanese Literature, Pop culture, TransAsian studies

Bei Yang (<http://alc.wisc.edu/about/faculty/bei-yang>) (Assistant Professor). Area: Second Language Acquisition, Chinese Languages and Linguistics

Hongming Zhang (<http://alc.wisc.edu/about/faculty/hongming-zhang>) (Professor). Area: Chinese Linguistics; History of Chinese Language; Teaching Chinese as a Second Language

Weihua Zhu (<http://alc.wisc.edu/about/faculty/weihua-zhu>) (Assistant Professor). Area: Chinese Language, Pedagogy and Second Language Acquisition

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## GRADUATE ADVISOR

Undergraduate Advisor:  
email Rachel Weiss (rweiss@wisc.edu)  
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## CHINESE, M.A.

UW-Madison offers M.A. and Ph.D. degrees in Chinese, specializing in linguistics, literature and culture, or thought. The program provides broad

foundations and focused training in these three tracks, assuring that graduates are prepared to teach and conduct research.

The Chinese Collection, as part of an East Asian Collection ranked highly nationally, houses excellent basic collections, databases, and journals.

The department is home to the journal *Chinese Literature: Essays, Articles, Reviews (CLEAR)* and encourages graduate student participation in the production of this publication.

For more details about the program and its respective specializations, see the department website (<http://eall.wisc.edu>).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

All 30 credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, no more than 7 credits of graduate coursework (as defined above) completed while a UW–Madison undergraduate may be counted to satisfy degree requirements. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of graduate coursework (as defined above) taken as a UW–

Madison Special student. Coursework earned five or more years prior to admission to a Master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

All students must take

Code	Title	Credits
E ASIAN 701	Proseminar in Chinese Literature	3
Select one of the following:		
E ASIAN 651 & E ASIAN 652	History of Chinese Literature and History of Chinese Literature	6
E ASIAN 631 & E ASIAN 632	History of the Chinese Language and History of the Chinese Language	
E ASIAN 671 & E ASIAN 672	Literary Studies in Chinese Drama and Literary Studies in Chinese Fiction	
Select one semester of one other history sequence		3
Select one of the following in the chosen track: <sup>1</sup>		3
E ASIAN 932	Seminar in Chinese Linguistics	2-3
E ASIAN 951	Seminar in Chinese Literature	
E ASIAN 971	Seminar in Chinese Thought	

<sup>1</sup> These may be substituted with other appropriate courses with the approval of the advisor. It is recommended that Chinese linguistics students take E ASIAN 431 Introduction to Chinese Linguistics and E ASIAN 432 Introduction to Chinese Linguistics.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

Students must earn a B or above in all coursework (300 or above, not including research credits) taken as a graduate student.

### PROBATION POLICY

If a student's average falls below 3.0 in a given semester, the department will decide whether the student may continue on probation. A specific plan will be arranged with dates and deadlines in place in regard to removal of probationary status.

### ADVISOR / COMMITTEE

All students are required to have an advisor, and should consult with a faculty member to serve as major professor no later than the end of their second semester.

To ensure they are making satisfactory progress, students are encouraged to meet with their advisor on a regular basis.

### ASSESSMENTS AND EXAMINATIONS

A final written examination is required.

Candidates are required to submit two substantial research papers written in seminars, or, with the consent of the major advisor, in a course at or above the 700 level.

## TIME CONSTRAINTS

The maximum time for completing all M.A. requirements and passing the M.A. examination is three years.

Master's degree students who are absent for five or more years will not be given credit for prior work.

## LANGUAGE REQUIREMENTS

Advanced proficiency in modern Chinese is required. Reading proficiency in Classical Chinese is required for students with interests in pre-twentieth century culture or historical linguistics.

## ADMISSIONS

Applications will be evaluated on the basis of the applicant's previous academic record, letters of recommendation, and personal statement. Graduate Record Exam (GRE) scores are required. TOEFL is required of all applicants who are not native speakers of English. Writing samples in English are strongly encouraged for M.A. applicants and required of Ph.D. applicants.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate understanding of the primary field(s) of study in a historical, comparative, and global context.
- Demonstrate understanding of the major theories, research methods, and approaches to inquiry in one of the following areas of study: Chinese literature and culture, Chinese linguistics, Japanese literature and culture, Japanese linguistics, and Transasian studies.
- Demonstrate ability to integrate theories into practice.
- Demonstrate ability to articulate and communicate knowledge in specialized field(s).

### PROFESSIONAL CONDUCT

- Recognize and apply principles of ethical and professional conduct.

## PEOPLE

### FACULTY

Professors Bühnemann, Dunne, Huang, Huntington, Kern, McGloin, Mori (chair), Nienhauser, Zhang; Associate Professors Cerulli, D'Etcheverry, Geyer, Lim, Meulenbeld, Ridgely; Assistant Professors Yang, Zhu (Diversity Liaison); Faculty Associate Barnard, Nakakubo

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## LANGUAGE INSTRUCTORS

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## CHINESE, PH.D.

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The Chinese Collection, as part of an East Asian Collection ranked highly nationally, houses excellent basic collections, databases, and journals.

The department is home to the journal *Chinese Literature: Essays, Articles, Reviews (CLEAR)* and encourages graduate student participation in the production of this publication.

For more details about the program and its respective specializations, see the department website (<http://eall.wisc.edu>).

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

All 51 credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, no more than 7 credits of graduate coursework (as defined above) completed while a UW–Madison undergraduate may be counted to satisfy degree requirements. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of graduate coursework (as defined above) taken as a UW–Madison Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Four seminars beyond the M.A. level are required. With the consent of the major professor, courses above the 700 level (exclusive of independent-reading courses) may be substituted for up to two of the seminars.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.50 GPA required

### OTHER GRADE REQUIREMENTS

Ph.D. candidates should maintain a 3.5 GPA in all coursework and may not have any more than two Incompletes on their record at any one time.

### PROBATION POLICY

A semester GPA below 3.5 will result in the student being placed on academic probation. If a semester GPA of 3.5 is not attained during the subsequent semester of full time enrollment, the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School. A student on probation may not take the preliminary examination.

### ADVISOR / COMMITTEE

All students are required to be supervised by a major professor. Students meet regularly with their advisor to ensure satisfactory progress. The major professor serves as dissertation advisor.

## ASSESSMENTS AND EXAMINATIONS

A dissertation proposal must be presented to the members of the Ph.D. committee and accepted within one semester of passing the preliminary examination.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Advanced proficiency in modern Chinese is required. Students must demonstrate reading proficiency in classical Chinese and one additional research language.

## ADMISSIONS

Applications will be evaluated on the basis of the applicant's previous academic record, letters of recommendation, and personal statement. Graduate Record Exam (GRE) scores are required. TOEFL is required of all applicants who are not native speakers of English. Writing samples in English are strongly encouraged for M.A. applicants and required of Ph.D. applicants.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Demonstrate a thorough and in-depth understanding of research problems, potentials, and limits with respect to theory, knowledge, or practice in at least one of the following areas of study: Chinese literature and culture, Chinese linguistics, Japanese literature and culture, Japanese linguistics, and Transasian studies.
- Formulate ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the specialized field(s).
- Create scholarship and advance knowledge that makes a substantive contribution to the field(s).
- Articulate and communicate complex ideas in a clear and understandable manner to both specialized and general audience.

## PROFESSIONAL CONDUCT

- Recognize, apply, and foster ethical and professional conduct.

## PEOPLE

### FACULTY

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## JAPANESE, DOCTORAL MINOR

### REQUIREMENTS

Students from other graduate programs intending to take a doctoral minor in Japanese should consult the Japanese program director. For the minor, at least 12 credits in graduate-level courses are required (400 level or above; certain 300-level courses are accepted with the prior consent of the program).

### PEOPLE

## FACULTY

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## JAPANESE, M.A.

UW–Madison offers M.A. and Ph.D. degrees in Japanese, specializing either in linguistics or in literature and culture. The program provides broad foundations and focused training in these two specialties, assuring that our graduates are amply prepared to teach and conduct research.

## JAPANESE PROGRAM

The literature and culture specialty covers the Heian through Heisei periods, offering a wide range of courses on fiction, poetry, drama, popular culture, visual culture, cinema, acoustic culture, and cutting-edge cross-media and avant-garde topics, particularly manga and anime.

The linguistics specialty excels in areas such as functional linguistics, pragmatics, discourse/conversation analysis, sociolinguistics, applied linguistics, and language pedagogy. Students will receive excellent training both in various aspects of Japanese linguistics and Japanese applied linguistics, not only in graduate courses they take but also through actual teaching as a teaching assistant.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

All 30 credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework

earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, no more than 7 credits of graduate coursework (as defined above) completed while a UW–Madison undergraduate may be counted to satisfy degree requirements. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of graduate coursework (as defined above) taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Japanese literature/culture students must take three graduate-level courses (500 level or above) in literature/culture, including at least one course at the 700 level or higher.

Japanese linguistics students must take E ASIAN 434 Introduction to Japanese Linguistics and E ASIAN 623 Teaching of Japanese as a Foreign Language.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

Students must earn a B or above in all coursework (300 or above, not including research credits) taken as a graduate student.

### PROBATION POLICY

If a student's average falls below 3.0 in a given semester, the department will decide whether the student may continue on probation. A specific plan will be arranged with dates and deadlines in place in regard to removal of probationary status.

### ADVISOR / COMMITTEE

All students are required to have an advisor, and should consult with a faculty member to serve as major professor no later than the end of their second semester. Students meet regularly with their advisor to ensure satisfactory progress.

### ASSESSMENTS AND EXAMINATIONS

For Japanese literature/culture students, a final examination is required.

Japanese linguistics students are required to pass two final in-class examinations on "Introduction to Japanese Linguistics" and "Teaching Japanese as a Foreign Language."

Linguistics students are required to submit one substantial research paper.

## TIME CONSTRAINTS

The maximum time for completing all M.A. requirements and passing the M.A. examination is three years.

Master's degree students who are absent for five or more years will not be given credit for prior work.

## LANGUAGE REQUIREMENTS

Advanced proficiency in modern Japanese is required.

## ADMISSIONS

Applications will be evaluated on the basis of the applicant's previous academic record, letters of recommendation, and personal statement. Graduate Record Exam (GRE) scores are required. TOEFL is required of all applicants who are not native speakers of English. Writing samples in English are strongly encouraged for M.A. applicants and required of Ph.D. applicants.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate understanding of the primary field(s) of study in a historical, comparative, and global context.
- Demonstrate understanding of the major theories, research methods, and approaches to inquiry in one of the following areas of study: Chinese literature and culture, Chinese linguistics, Japanese literature and culture, Japanese linguistics, and Transasian studies.
- Demonstrate ability to integrate theories into practice.
- Demonstrate ability to articulate and communicate knowledge in specialized field(s).

### PROFESSIONAL CONDUCT

- Recognize and apply principles of ethical and professional conduct.

## PEOPLE

### FACULTY

Professors Bühnemann, Dunne, Huang, Huntington, Kern, McGloin, Mori (chair), Nienhauser, Zhang; Associate Professors Cerulli, D'Etcheverry, Geyer, Lim, Meulenbeld, Ridgely; Assistant Professors Yang, Zhu (Diversity Liaison); Faculty Associate Barnard, Nakakubo

#### EAST ASIA

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Naomi Geyer (<http://alc.wisc.edu/about/faculty/naomi-geyer>) (Associate Professor). Area: Japanese Language

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## GRADUATE ADVISOR

Undergraduate Advisor:  
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## JAPANESE, PH.D.

UW–Madison offers M.A. and Ph.D. degrees in Japanese, specializing either in linguistics or in literature and culture. The program provides broad foundations and focused training in these two specialties, assuring that our graduates are amply prepared to teach and conduct research.

## JAPANESE PROGRAM

The literature and culture specialty covers the Heian through Heisei periods, offering a wide range of courses on fiction, poetry, drama, popular culture, visual culture, cinema, acoustic culture, and cutting-edge cross-media and avant-garde topics, particularly manga and anime.

The linguistics specialty excels in areas such as functional linguistics, pragmatics, discourse/conversation analysis, sociolinguistics, applied linguistics, and language pedagogy. Students will receive excellent training both in various aspects of Japanese linguistics and Japanese applied linguistics, not only in graduate courses they take but also through actual teaching as a teaching assistant.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

All 51 credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, no more than 7 credits of graduate coursework (as defined above) completed while a UW–Madison undergraduate may be counted to satisfy degree requirements. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of graduate coursework (as defined above) taken as a UW–Madison special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

After completing the M.A., Japanese literature/culture students must take three additional courses in Japanese literature/culture at the 700 level or higher. Japanese linguistics students must take E ASIAN 775 Studies in Japanese Linguistics.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

Japanese Linguistics students are encouraged to complete a minor in Linguistics or SLA. The 12 credits required for a minor count as part of the 51 credits required for the Ph.D. coursework.

### OVERALL GRADUATE GPA REQUIREMENT

3.50 GPA required

### OTHER GRADE REQUIREMENTS

Ph.D. candidates should maintain a 3.5 GPA in all coursework and may not have any more than two Incompletes on their record at any one time.

### PROBATION POLICY

A semester GPA below 3.5 will result in the student being placed on academic probation. If a semester GPA of 3.5 is not attained during the subsequent semester of full time enrollment, the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School. A student on probation may not take the preliminary examination.

## ADVISOR / COMMITTEE

All students are required to be supervised by a major professor. Students meet regularly with their advisor to ensure satisfactory progress. The major professor serves as dissertation advisor.

## ASSESSMENTS AND EXAMINATIONS

Japanese literature/culture students are required to take a comprehensive preliminary examination. A dissertation proposal must be presented to the members of the Ph.D. Committee and accepted within one semester of passing the preliminary examination.

Japanese linguistics students need to complete three preliminary exams (two in-class or take home exams and a paper). The three preliminary exams should be completed within one year.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Japanese literature students must demonstrate reading proficiency in classical Japanese and one research language.

Japanese linguistic students are required to demonstrate basic knowledge of the structure of one non-Western language other than Japanese. The language requirements must be completed by time when students finish taking the preliminary exams.

## ADMISSIONS

Applications will be evaluated on the basis of the applicant's previous academic record, letters of recommendation, and personal statement. Graduate Record Exam (GRE) scores are required. TOEFL is required of all applicants who are not native speakers of English. Writing samples in English are strongly encouraged for M.A. applicants and required of Ph.D. applicants.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Demonstrate a thorough and in-depth understanding of research problems, potentials, and limits with respect to theory, knowledge, or practice in at least one of the following areas of study: Chinese literature and culture, Chinese linguistics, Japanese literature and culture, Japanese linguistics, and Transasian studies.
- Formulate ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the specialized field(s).
- Create scholarship and advance knowledge that makes a substantive contribution to the field(s).
- Articulate and communicate complex ideas in a clear and understandable manner to both specialized and general audience.

## PROFESSIONAL CONDUCT

- Recognize, apply, and foster ethical and professional conduct.

## PEOPLE

## FACULTY

Professors Bühnemann, Dunne, Huang, Huntington, Kern, McGloin, Mori (chair), Nienhauser, Zhang; Associate Professors Cerulli, D'Etcheverry, Geyer, Lim, Meulenbeld, Ridgely; Assistant Professors Yang, Zhu (Diversity Liaison); Faculty Associate Barnard, Nakakubo

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## LANGUAGE INSTRUCTORS

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Undergraduate Advisor:  
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## LANGUAGES AND CULTURES OF ASIA, DOCTORAL MINOR

### REQUIREMENTS

Students in other departments who wish to minor in languages and cultures of Asia must complete 12 credits above the 300 level with a cumulative GPA of 3.0 in the department. Such students are required to take one course in literature and one course in religion or philosophy. Any other courses to fulfill the minor requirement are selected in prior consultation with the department's minor advisor, who is designated as such by the Department of Languages and Cultures of Asia and is authorized to sign the doctoral minor agreement form.

Courses cross-listed in a student's major department and in languages and cultures of Asia do not count toward the minor requirement. Elementary and intermediate language courses or "directed study" courses are not accepted toward the fulfillment of the minor requirement in languages and cultures of Asia.

## PEOPLE

### FACULTY

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## LANGUAGES AND CULTURES OF ASIA, M.A.

The M.A. program offers a wide exposure to areas of Asia while developing skills in one or more Asian languages. The degree can lead to a Ph.D. program, or to a career in government agencies, educational foundations, or to work in non-government organizations. Ph.D. students in other departments may enroll in this M.A. program to provide for comprehensive Asian languages and area training.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

50% of degree credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Students are required to take two courses in Literature, two seminars or proseminars in the department and additional LCA courses to meet the credit requirements.

### OVERALL GRADUATE GPA REQUIREMENT

Overall 3.0 GPA

### OTHER GRADE REQUIREMENTS

No other specific grade requirements.

### PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on department probation. If a semester GPA of 3.0 is not attained during the subsequent semester of enrollment, the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

### ADVISOR / COMMITTEE

Students are required to have a signed advisor form on file. In the absence of a signed advisor form, the APC chair will act as advisor.

## ASSESSMENTS AND EXAMINATIONS

All students must complete an M.A. thesis and oral examination by committee with a Pass or High Pass to receive the M.A. degree.

Students will be required to pass a language competency exam prior to defense of their thesis.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Three years (six semesters) of an Asian language offered by the department or two years (four semesters) of two Asian languages offered by the department. The student's required competence will be determined prior to the student's M.A. oral examination. The form of the examination will be determined by the faculty member administering the examination.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website for details.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Demonstrate knowledge of one or more regions of Asia with a focus on the cultures, religions, history, literature and languages within the humanistic scholarship of Asia.
- Demonstrate proficiency in reading, speaking, and listening in one or more LCA languages.
- Analyze and synthesize information and ideas within the context of Asian humanities.
- Understand, respond to, and construct arguments across disciplines.
- Apply their knowledge to solutions of intellectual as well as practical problems.
- Conduct academic research using sources, methodologies, and critical theories.
- Communicate effectively in writing and orally.

## PROFESSIONAL CONDUCT

- Recognize and apply principles of professional and ethical conduct.

## PEOPLE

## FACULTY

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## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D., with available named options in Languages and Literature; Civilizations and Culture; Religious Studies

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

50% of degree credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Students are required to take two courses in Literature, four LCA seminars or proseminars and additional LCA courses to meet the credit requirements.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

The doctoral minor is optional for LCA doctoral students.

### OVERALL GRADUATE GPA REQUIREMENT

Overall 3.0 GPA

### OTHER GRADE REQUIREMENTS

No other specific grade requirements.

### PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on department probation. If a semester GPA of 3.0 is not attained during the subsequent semester of enrollment, the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

### ADVISOR / COMMITTEE

Students are required to have a signed advisor form on file. In the absence of a signed advisor form, the APC chair will act as advisor.

### ASSESSMENTS AND EXAMINATIONS

Students must take and pass written and oral exams, along with a defense of their thesis proposal prior to being admitted to dissertator status.



Students will be required to pass language competency exams.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be considered to not be in good standing with the department and may need to request permission for an extension from the APC.

## LANGUAGE REQUIREMENTS

Three years (six semesters) of an Asian language offered by the department and two years (four semesters) of another Asian language offered by the department or one year (two semesters) of two other Asian languages offered by the department. Students' competence will be determined by the faculty member administering the exam.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website for details.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Demonstrate knowledge of one or more regions of Asia with a focus on the cultures, religions, history, literature and languages within the humanistic scholarship of Asia.
- Demonstrate proficiency in reading, speaking, and listening in one or more LCA languages.
- Analyze and synthesize information and ideas within the context of Asian humanities.
- Understand, respond to, and construct arguments across disciplines.
- Apply their knowledge to solutions of intellectual as well as practical problems.
- Conduct academic research using sources, methodologies, and critical theories.
- Communicate effectively in writing and orally.

## PROFESSIONAL CONDUCT

- Recognize and apply principles of professional and ethical conduct.

## PEOPLE

## FACULTY

Professors Bühnemann, Dunne, Huang, Huntington, Kern, McGloin, Mori (chair), Nienhauser, Zhang; Associate Professors Cerulli, D'Etcheverry,

Geyer, Lim, Meulenbeld, Ridgely; Assistant Professors Yang, Zhu (Diversity Liaison); Faculty Associate Barnard, Nakakubo

## EAST ASIA

Charo D'Etcheverry (<http://alc.wisc.edu/about/faculty/charo-detcheverry>) (Associate Professor). Area: Classical Japanese Literature

Naomi Geyer (<http://alc.wisc.edu/about/faculty/naomi-geyer>) (Associate Professor). Area: Japanese Language

Nicole Huang (<http://alc.wisc.edu/about/faculty/nicole-huang>) (Professor). Area: Transcultural East Asia; 20th century Chinese and Taiwanese Literature

Rania Huntington (<http://alc.wisc.edu/about/faculty/rania-huntington>) (Professor). Area: Ming and Qing Narrative and Drama, Chinese Literature of the weird and supernatural

Adam L. Kern (<http://alc.wisc.edu/about/faculty/adam-l-kern>) (Professor). Area: Popular Literature, Culture, Poetry, Theater, and Visual Culture of early modern-modern Japan.

Byung-jin Lim (<http://alc.wisc.edu/about/faculty/byung-jin-lim>) (Associate Professor). Area: Korean Language and Linguistics, Second / Foreign Language Acquisition, Korean Language Textbook Development

Naomi McGloin (<http://alc.wisc.edu/about/faculty/naomi-mcgloin>) (Professor). Area: Japanese Language and Linguistics

Mark Meulenbeld (<http://alc.wisc.edu/about/faculty/william-nienhauser>) (Associate Professor). Area: Daoism, Chinese Religion and Literature

Junko Mori (<http://alc.wisc.edu/about/faculty/steve-ridgely>) (Professor). Area: Japanese Linguistics, Applied Linguistics, Sociolinguistics

Takako Nakakubo (<http://alc.wisc.edu/about/faculty/takako-nakakubo>) (Faculty Associate). Area: Second Language Acquisition of Japanese, Japanese Pedagogy

William Nienhauser (<http://alc.wisc.edu/about/faculty/william-nienhauser>) (Professor). Area: Early Traditional Chinese Fiction and History; early poetry (Du Fu and Tao Qian)

Steve Ridgely (<http://alc.wisc.edu/about/faculty/steve-ridgely>) (Associate Professor). Area: Modern Japanese Literature, Pop culture, TransAsian studies

Bei Yang (<http://alc.wisc.edu/about/faculty/bei-yang>) (Assistant Professor). Area: Second Language Acquisition, Chinese Languages and Linguistics

Hongming Zhang (<http://alc.wisc.edu/about/faculty/hongming-zhang>) (Professor). Area: Chinese Linguistics; History of Chinese Language; Teaching Chinese as a Second Language

Weihua Zhu (<http://alc.wisc.edu/about/faculty/weihua-zhu>) (Assistant Professor). Area: Chinese Language, Pedagogy and Second Language Acquisition

## SOUTH ASIA

Gudrun Bühnemann (<http://alc.wisc.edu/about/faculty/gudrun-b%C3%BChnemann>) (Professor). Area: Sanskrit Language and Literature; Buddhism in India and Nepal; Hinduism; Tantrism; Yoga Studies

Anthony Cerulli (<http://alc.wisc.edu/about/faculty/anthony-cerulli>) (Associate Professor). Area: Theory and Method in the Study of Religion

in South Asia; History of Medicine in India; Sanskrit Language and Literature; Kerala History and Culture; Malayalam Language.

John D. Dunne (<http://alc.wisc.edu/about/faculty/john-d-dunne>) (Professor). Area: Buddhist Philosophy and Contemplative Practice; Religious Studies; Cognitive Science of Religion

## **SOUTHEAST ASIA**

Erlin Barnard (<http://alc.wisc.edu/about/faculty/erlin-barnard>) (Faculty Associate) Area: Indonesian Language, Language Pedagogy; Materials Development; Second Language Acquisition

## **LANGUAGE INSTRUCTORS**

Language instructors (<http://alc.wisc.edu/about/language-instructors>) are an integral part of our department, teaching more than 14 languages during the academic year from East (Chinese, Japanese, Korean), South (Hindi, Persian, Sanskrit, Tibetan, Urdu), Southeast (Burmese, Filipino, Hmong, Indonesian, Thai, Vietnamese) Asian Languages.

## **GRADUATE ADVISOR**

Undergraduate Advisor:  
email Rachel Weiss ([rweiss@wisc.edu](mailto:rweiss@wisc.edu))  
1244 Van Hise Hall  
608-890-0138

# ASTRONOMY

**Administrative Unit:** Astronomy

**College/School:** College of Letters & Science

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The Department of Astronomy offers the doctor of philosophy in astronomy. Although a master's degree is offered, students generally are not admitted for a terminal master's degree.

The department has a long-standing reputation as one of the finest graduate astronomy and astrophysics programs in the United States. The program provides each student with a broad knowledge of modern observational and theoretical astrophysics, while emphasizing the development of independent research skills. Beginning with the first year in the program, graduate students play an active role in the department's research programs and have access to all research facilities. As teaching assistants, they also acquire experience as astronomy educators.

The faculty are engaged in a broad range of observational and theoretical research. Topics of study include dynamical phenomena of massive stars; binary star evolution; dynamics of star clusters and star forming regions; compact objects; the interstellar and intergalactic medium; star formation; plasma astrophysics; computational fluid mechanics; magnetic fields; turbulence; the structure, kinematics, and stellar populations of nearby galaxies; active galactic nuclei; galactic winds and chemical evolution; galaxy clusters; galaxy formation and evolution; the star formation and black hole accretion history of the universe; and the development of innovative astronomical instrumentation. More information is available on the department website.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Astronomy, Doctoral Minor (p. 99)
- Astronomy, M.S. (p. 99)
- Astronomy, Ph.D. (p. 101)

## RESOURCES

### RESEARCH FACILITIES

Astronomical observations at UW–Madison trace their origin to the 15-inch refractor of Washburn Observatory, founded on the campus in 1878, and still open for public viewing. Wisconsin subsequently pioneered a multi-wavelength approach to astronomical observation. Faculty, research staff, and students are frequent observers on X-ray, ultraviolet, optical, infrared, radio, and submillimeter telescopes around the globe and in space. The department currently participates in the operation of a number of research-class observing facilities and is actively engaged in the development of cutting-edge instrumentation.

The university is a major partner in the WIYN telescope, an advanced technology 3.5m telescope at Kitt Peak, Arizona, optimized for wide-field imaging and spectroscopy, and in the 11m Southern African Large Telescope (SALT), the largest single aperture optical telescope in the Southern Hemisphere. The university is also a partner in the Sloan Digital

Sky Survey IV, a massive spectroscopic survey of the distant Universe, nearby galaxies, and stars in the Milky Way. The department is actively involved in ASKAP and MEERKAT, precursor experiments for an array of radio telescopes one square kilometer in size.

The department has a long history of developing astronomical instrumentation for both ground and space-based facilities. Current efforts center on the development of a near-infrared arm for the Robert Stobie Spectrograph on SALT, and the design and testing of fiber bundle arrays for the Sloan Digital Sky Survey IV. UW scientists are also continuing to develop and operate the Wisconsin H-Alpha Mapper (WHAM), a uniquely powerful instrument dedicated to the study of the warm ionized gas in the Milky Way, and an innovative and highly successful Star Tracker for sounding rocket and balloon-borne experiments. Technical support is provided by in-house electronics and machine shops.

The theory group maintains a variety of facilities to support numerical simulations. The main workhorse is a 72-node, 576-core cluster optimized for tightly coupled problems, such as hydrodynamics and magneto-hydrodynamics. A number of smaller clusters are used for development, analysis and three-dimensional visualization.

## PEOPLE

**Faculty:** Professors Zweibel (chair), Barger, Bershady, Gallagher, Heinz, Lazarian, Mathieu, Stanimirovic, Wilcots; Associate Professor Townsend; Assistant Professors D'Onghia, Tremonti

## ASTRONOMY, DOCTORAL MINOR

### REQUIREMENTS

Graduate students from other programs who wish to minor in astronomy should ask the department to assign them a minor professor. The minimum requirement for a minor is 10 credits from courses at or above the 500 level offered by the Department of Astronomy, to include both ASTRON 500 Techniques of Modern Observational Astrophysics and ASTRON 700 Basic Astrophysics I.

## PEOPLE

**Faculty:** Professors Zweibel (chair), Barger, Bershady, Gallagher, Heinz, Lazarian, Mathieu, Stanimirovic, Wilcots; Associate Professor Townsend; Assistant Professors D'Onghia, Tremonti

## ASTRONOMY, M.S.

The Department of Astronomy offers the doctor of philosophy in astronomy. Although a master's degree is offered, students generally are not admitted for a terminal master's degree.

The department has a long-standing reputation as one of the finest graduate astronomy and astrophysics programs in the United States. The program provides each student with a broad knowledge of modern observational and theoretical astrophysics, while emphasizing the development of independent research skills. Beginning with the first year in the program, graduate students play an active role in the department's

research programs and have access to all research facilities. As teaching assistants, they also acquire experience as astronomy educators.

The faculty are engaged in a broad range of observational and theoretical research. Topics of study include dynamical phenomena of massive stars; binary star evolution; dynamics of star clusters and star forming regions; compact objects; the interstellar and intergalactic medium; star formation; plasma astrophysics; computational fluid mechanics; magnetic fields; turbulence; the structure, kinematics, and stellar populations of nearby galaxies; active galactic nuclei; galactic winds and chemical evolution; galaxy clusters; galaxy formation and evolution; the star formation and black hole accretion history of the universe; and the development of innovative astronomical instrumentation. More information is available on the department website.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

34 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the degree coursework (17 of 34 credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 17 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Up to 7 credits numbered 700 or above from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENT: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 400 or above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
ASTRON 500	Techniques of Modern Observational Astrophysics	3
ASTRON 700	Basic Astrophysics I	2
ASTRON 702	Basic Astrophysics II	2
ASTRON 715	Stellar Interiors and Evolution	2
ASTRON 720	The Interstellar Medium I: Basic Processes	2
ASTRON 730	Galaxies	2
ASTRON 735	Observational Cosmology	2
ASTRON 990	Research and Thesis	1-12

### BREADTH REQUIREMENT

All M.S. students are required to complete 12 credits of coursework in relevant departments outside of astronomy. The coursework will normally be at the 400 level and above although special exceptions may be made in the case where 300-level courses are needed to satisfy prerequisites. At least two courses must be at the 600 level and above. Courses in departments other than physics should be approved by the student's mentoring committee (or the graduate advisor if the mentoring committee has not yet been formed.)

### OVERALL GRADUATE GPA REQUIREMENT

3.0 GPA required

### OTHER GRADE REQUIREMENTS

A grade of S must be received in ASTRON 990 Research and Thesis before the preliminary examination may be taken.

### PROBATION POLICY

A grade of C or lower in a core course will result in the student being placed on academic probation. This is removed after the next grade of B or better in a core course. Grades of C or lower in two or more core courses will result in dismissal.

A semester GPA below 3.0 will result in the student being placed on academic probation. This will be removed if the student attains a GPA of 3.0 or above in the subsequent semester.

### ADVISOR / COMMITTEE

All students will be assigned a mentoring committee consisting of the student's advisor and two other faculty members. Students are strongly encouraged (but not required) to meet with their mentoring committees twice a year.

### ASSESSMENTS AND EXAMINATIONS

Students take a preliminary examination after completing their second academic year. Possible scores are "high pass," "low pass," and "fail." Students attaining a high pass or a low pass are eligible for a master's. Students who fail will be dismissed from the program.

To receive a terminal master's degree, students must complete a written master's thesis that is approved by their faculty advisor.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years will be dismissed from the program.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D (p. 101).

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Demonstrate a broad understanding of core astrophysical topics including gravitational dynamics; radiative processes; the interstellar medium; the formation, structure, and evolution of stars and galaxies; cosmology; and observational and numerical techniques.
- Identify sources and assemble evidence pertaining to questions or challenges in their area of concentration.
- Synthesize knowledge from disparate sources and evaluate evidence for and against hypotheses.
- Demonstrate academic mastery in their area of concentration, including an understanding of appropriate research methodologies, current theories, recent findings, and their broader implications.

## PROFESSIONAL CONDUCT

- Students will recognize and apply principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Zweibel (chair), Barger, Bershady, Gallagher, Heinz, Lazarian, Mathieu, Stanimirovic, Wilcots; Associate Professor Townsend; Assistant Professors D'Onghia, Tremonti

## ASTRONOMY, PH.D.

The goal of the graduate program is to prepare capable and creative astronomers for careers in research and education. The granting of the Ph.D. degree indicates that the recipient has a mastery of the knowledge and techniques of modern astrophysics. A Ph.D. candidate is expected to be both knowledgeable of problems at the frontiers of astrophysical research and able to carry out independent forefront research in a specialized area. Candidates are required to gain experience as teaching assistants and are encouraged to work with a variety of faculty and research staff members during the first two years of study.

The Department of Astronomy offers the doctor of philosophy in astronomy. Although a master's degree is offered, students generally are not admitted for a terminal master's degree.

The department has a long-standing reputation as one of the finest graduate astronomy and astrophysics programs in the United States. The program provides each student with a broad knowledge of modern

observational and theoretical astrophysics, while emphasizing the development of independent research skills. Beginning with the first year in the program, graduate students play an active role in the department's research programs and have access to all research facilities. As teaching assistants, they also acquire experience as astronomy educators.

The faculty are engaged in a broad range of observational and theoretical research. Topics of study include dynamical phenomena of massive stars; binary star evolution; dynamics of star clusters and star forming regions; compact objects; the interstellar and intergalactic medium; star formation; plasma astrophysics; computational fluid mechanics; magnetic fields; turbulence; the structure, kinematics, and stellar populations of nearby galaxies; active galactic nuclei; galactic winds and chemical evolution; galaxy clusters; galaxy formation and evolution; the star formation and black hole accretion history of the universe; and the development of innovative astronomical instrumentation. More information is available on the department website.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

## DOCTORAL DEGREES

Ph.D.

## MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the degree coursework (26 of 51 credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 34 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Up to 700 credits numbered 7 or above from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 400 or above taken as a UW–Madison Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
ASTRON 500	Techniques of Modern Observational Astrophysics	3
ASTRON 700	Basic Astrophysics I	2
ASTRON 702	Basic Astrophysics II	2
ASTRON 715	Stellar Interiors and Evolution	2
ASTRON 720	The Interstellar Medium I: Basic Processes	2
ASTRON 730	Galaxies	2
ASTRON 735	Observational Cosmology	2
ASTRON 990	Research and Thesis	1-12

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

They may either meet the minor requirements set by an external department (typically physics), or they may choose a distributed minor. In the latter case 12 credits must be taken from two or more relevant departments outside of astronomy. The coursework will normally be at the 400 level and above although special exceptions may be made in the case where 300-level courses are needed to satisfy prerequisites. At least two courses must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>). Courses for the distributed minor or for minors outside of physics should be approved by the student's mentoring committee (or the graduate advisor if the mentoring committee has not yet been formed.)

## OVERALL GRADUATE GPA REQUIREMENT

3.0 GPA required

## OTHER GRADE REQUIREMENTS

A GPA of at least 3.0 is required in the core (required) courses and a student may have no more than 3 credits of a C or below. A grade of S must be received in ASTRON 990 Research and Thesis before the preliminary examination can be taken.

## PROBATION POLICY

A grade of C or lower in a core course will result in the student being placed on academic probation. This is removed after the next grade of

B or better in a core course. Grades of C or lower in two or more core courses will result in dismissal.

A semester GPA below 3.0 will result in the student being placed on academic probation. This will be removed if the student attains a GPA of 3.0 or above in the subsequent semester.

## ADVISOR / COMMITTEE

All students will be assigned a mentoring committee consisting of the student's advisor and two other faculty members. Students are strongly encouraged (but not required) to meet with their mentoring committees twice a year in the first two years and annually thereafter.

## ASSESSMENTS AND EXAMINATIONS

Students take a preliminary examination after completing their second academic year. Possible scores are "high pass," "low pass," and "fail." Students attaining a high pass are eligible to continue toward their Ph.D. Students obtaining a low pass may retake the exam or portions of the exam pending approval by the faculty. If this approval is not granted or students do not wish to retake the exam, they may complete the requirements for a terminal masters. Students who fail the exam will be dismissed from the program.

Doctoral candidates must submit a written dissertation proposal and make an oral presentation to the faculty by the end of their third academic year.

A written dissertation must be submitted and successfully defended before a faculty committee.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

To enter as a graduate student, an applicant must have undergraduate preparation that includes at least three years of college physics and mathematics through differential equations. Applicants are judged on the basis of previous academic record, letters of recommendation, personal statement, research experience, and Graduate Record Exam (GRE) scores. Admission is competitive and is for the fall only.

Applicants for admission must submit the following via the Graduate School online application:

- Transcripts of all undergraduate work
- Statement on reasons for graduate study in astronomy
- Three letters of recommendation from people well acquainted with past academic work
- Graduate Record Exam (GRE) scores (general test and subject test in physics)
- International students must submit scores from the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS)

Financial support is provided through university fellowships (incoming graduate students only) or department assistantships. To compete for fellowships awarded by the university, students must submit all application materials (including the GRE scores) via the online Graduate School Application by December 31.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate a broad understanding of core astrophysical topics including gravitational dynamics; radiative processes; the interstellar medium; the formation, structure, and evolution of stars and galaxies; cosmology; and observational and numerical techniques.
- Demonstrate academic mastery in their area of concentration, including a deep understanding of current theories, recent findings, and their broader implications.
- Use their core knowledge and critical thinking skills to assess the work of others. They will examine the scientific literature, evaluate evidence for and against hypotheses, synthesize knowledge from disparate sources, and develop conclusions.
- Evaluate scientific literature and use it to construct theoretical frameworks and testable predictions for their own research projects.
- Participate in writing competitive proposals to use research facilities and to obtain research support.

### PROFESSIONAL CONDUCT

- Students will foster ethical and professional conduct.

### ADDITIONAL LEARNING GOALS

#### RESEARCH

Students will develop and complete original research that substantively advances a specific field of study. In so doing, they will cultivate their critical thinking skills, creativity, and independence. They will:

- Utilize modern instrumental, observational, or theoretical research techniques in their analysis.
- Formulate ideas, designs, or techniques that advance the boundaries of knowledge within their field.
- Critically evaluate the robustness and limits of conclusions drawn from their research and the potential for future studies.
- Write clear and concise research articles for publication in refereed journals.
- Deliver articulate oral presentations on their research to diverse audiences ranging from academic departments to the general public.
- Work productively in a collaborative environment.

#### TEACHING

- Students will serve as teaching assistants for at least one semester. They will: communicate scientific ideas in a clear and understandable manner, employ techniques that enhance student engagement, and develop and carry out assessments of student progress.

## PEOPLE

**Faculty:** Professors Zweibel (chair), Barger, Bershad, Gallagher, Heinz, Lazarian, Mathieu, Stanimirovic, Wilcots; Associate Professor Townsend; Assistant Professors D'Onghia, Tremonti

## ATMOSPHERIC AND OCEANIC SCIENCES

**Administrative Unit:** Atmospheric and Oceanic Sciences

**College/School:** College of Letters & Science

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The department offers the master of science degree as well as the doctor of philosophy degree with a major in atmospheric and oceanic sciences (AOS).

In atmospheric and oceanic sciences, classical physics is applied to describe the behavior of the fluids that compose the atmosphere/ocean/earth system. Influences of solar and terrestrial radiation, clouds and storms, natural and anthropogenic pollution, dynamical forces and turbulence can affect both the weather and longer climatic variations. The department uses computer simulations, passive and active remote sensing, in situ weather instruments, and laboratory experiments to study atmospheric phenomena.

The department has 13 faculty, approximately 60 graduate students, and many staff involved in large and energetic research programs. Particular strengths include climate/earth system science, geophysical fluid dynamics, remote sensing, planetary boundary layer, atmospheric chemistry, weather systems and prediction, and oceanography. Course concentrations within the existing degree program are offered in the areas of weather prediction, earth system science, remote sensing, and oceanography.

Course and research emphasis of the department's oceanographic component is in physical oceanography, ocean-atmosphere climate dynamics, and marine geochemical cycles. A concentration of courses in oceanography can be used to satisfy the AOS Ph.D. minor.

The department has close ties with the Center for Climatic Research, The Nelson Institute for Environmental Studies, Center for Sustainability and the Global Environment, Space Science and Engineering Center, Cooperative Institute for Meteorological Satellite Studies, National Weather Service, and the State Climatologist Office.

Financial assistance is available to qualified students. The typical sources of funding are research and teaching assistantships. All applicants are considered for any available assistantships. Financial aid is handled separately from admission in the department. Students generally hear about their admission status well before any decision about financial aid is made.

Job opportunities have been strong within the United States for people with graduate degrees in atmospheric and oceanic sciences. The government hires a large number of meteorologists with advanced degrees, as do many private forecasting companies and air quality consulting firms. In addition, there are openings for experts at various government and university research labs.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Atmospheric and Oceanic Sciences, Doctoral Minor (p. 104)
- Atmospheric and Oceanic Sciences, M.S. (p. 104)
- Atmospheric and Oceanic Sciences, Ph.D. (p. 106)

### PEOPLE

**Faculty:** Professors Petty (chair), Ackerman, Hitchman, Liu, Martin, Morgan, Tripoli, Wang; Associate Professors Desai, Holloway, McKinley, Vimont; Assistant Professors Back, L'Ecuyer

## ATMOSPHERIC AND OCEANIC SCIENCES, DOCTORAL MINOR

### REQUIREMENTS

The graduate chair or any other professor in atmospheric and oceanic sciences may serve as a minor professor on a Ph.D. committee. The graduate chair will certify that the minor course requirements have been met.

The minor requirement is 10 or more credits of any AOS course at or above the 400 level. Overall GPA for the minor must be at least 3.0.

AOS courses assume a prerequisite background in college physics (two semesters), calculus (three semesters), and chemistry (one semester).

### PEOPLE

**Faculty:** Professors Petty (chair), Ackerman, Hitchman, Liu, Martin, Morgan, Tripoli, Wang; Associate Professors Desai, Holloway, McKinley, Vimont; Assistant Professors Back, L'Ecuyer

## ATMOSPHERIC AND OCEANIC SCIENCES, M.S.

The majority of graduate students get an M.S. degree, which can be earned as part of the path toward a Ph.D. degree or earned as a terminal degree opening significant opportunities within the public and private sectors. For both the thesis and the nonthesis options, a set of six core courses is highly recommended as a good foundation for a graduate degree in the Department of Atmospheric and Oceanic Sciences.



## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.S., with available thesis and non-thesis tracks

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

M.S.–thesis tract: 30 credits

M.S.–non-thesis track: 36 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

M.S.–thesis tract: 16 credits

M.S.–non-thesis track: 19 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

M.S.–thesis tract: Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

M.S.–non-thesis tract: Half of degree coursework (18 credits out of 36 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.S.–thesis tract: With program approval, students are allowed to count no more than 14 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

M.S.–non-thesis track: With program approval, students are allowed to count no more than 17 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits of graduate coursework taken as an undergraduate at UW-Madison, as long as those credits were not applied toward an undergraduate degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

M.S.–thesis tract:

- 12 of the credits must be taken in the department as lecture courses numbered 400 or above. Seminars, research, independent study or directed reading courses do not satisfy this requirement. A grade of B or greater is required for these 12 credits.
- An additional 12 (at least) credits may be taken in or out of the department. These credits can include seminars, core courses, and other courses taken as a graduate student. Research credits do not count toward this requirement.
- Up to 6 research credits in the department can be counted (but are not required) toward the 30 credit requirement.

M.S.–non-thesis track:

- At least 18 credits must be from courses numbered 400 or above in the department. Seminars, research, independent study or directed reading courses do not satisfy this requirement.
- An additional 6 (at least) credits must be from courses outside of the department. Seminars and research credits do not satisfy this requirement.
- A total of 30 credits must be taken from nonseminar courses. Research credits do not contribute to this requirement.
- Up to 6 credits can be from seminar courses in any department, from research in the atmospheric and oceanic sciences department only if approved by the student's advisor, or from independent study or directed reading in any department. Up to 2 of these 6 credits may be awarded for prior professional experience, or by an internship conducted as part of the M.S. program.

#### OVERALL GRADUATE GPA REQUIREMENT

3.0 GPA required

#### OTHER GRADE REQUIREMENTS

M.S.–thesis tract: A grade of B or greater is required for the 12 credits of lecture courses in the department numbered 400 or above. See above, under "Program-Specific Courses Required."

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

#### PROBATION POLICY

Academic probation:

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment

if enrolled part-time) the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

Probation based on progress:

Probation is based on student status. The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their advisor, scheduled by December 31 and completed by April 30. Failure to do so will result in a hold being placed on the student's registration.

## ASSESSMENTS AND EXAMINATIONS

M.S.–thesis tract: A master's thesis is required, and must be approved by the major professor and two additional faculty members. A public oral presentation of presentation of the thesis research is required.

M.S.–non-thesis tract: A paper demonstrating technical writing skill is required. The student can write this paper by working individually with a professor in a directed research setting, or as part of a seminar class. The professor in charge of the directed study or seminar course indicates acceptance of the paper as evidence of technical writing skill by signing the paper.

## TIME CONSTRAINTS

The M.S. degree should be completed within three years. For additional time constraints please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Prerequisites for admission are one semester of chemistry, three semesters of calculus, one semester of differential equations, and two semesters of calculus-based physics. Prior work in atmospheric or oceanic sciences is not required, but it is beneficial. Knowledge of computer programming is recommended. Admitted students generally have GRE quantitative scores of at least 151 (650 prior scale, 56% percentile), verbal reasoning scores of 152 (490 prior scale, 56% percentile) and analytical scores of 4.0 (48% percentile), and have a GPA of better than 3.0 on a 4.0 scale. International students must submit scores from the Test of English as a Foreign Language (TOEFL) or the

International English Language Testing System (IELTS). Applications are also judged on academic record, letters of recommendation, prior research experience, and the statement of purpose. Ph.D. students must have an advisor identified before they can be recommended for admission.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Acquisition of a broad foundation of knowledge contained in our graduate-level core courses: Geophysical Fluid Dynamics I and II, Radiation in the Atmosphere and Ocean, Introduction to Atmospheric and Oceanic Physics, Introduction to Physical Oceanography.
- Students will have learned the historical origin and significance of certain issues central to the field by taking a special seminar course (ATM OCN 900 Seminar-Meteorology).
- Students will have developed a good problem-solving skill that prepares them to become efficient supporting scientists for research institutions or effective career atmospheric professionals in operational units of government or commercial institutions.
- Students articulate, critique, or elaborate the theories, research methods, and approaches to inquiry or schools of practice in the field of study.

### PROFESSIONAL CONDUCT

- Students recognize and apply principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Petty (chair), Ackerman, Hitchman, Liu, Martin, Morgan, Tripoli, Wang; Associate Professors Desai, Holloway, McKinley, Vimont; Assistant Professors Back, L'Ecuyer

## ATMOSPHERIC AND OCEANIC SCIENCES, PH.D.

A doctor of philosophy degree is offered with a major in atmospheric and oceanic sciences. Candidates may enter with a master's degree or, for more qualified students, directly after earning a bachelor's degree.

In atmospheric and oceanic sciences, classical physics is applied to describe the behavior of the fluids that compose the atmosphere/ocean/earth system. Influences of solar and terrestrial radiation, clouds and storms, natural and anthropogenic pollution, dynamical forces and turbulence can affect both the weather and longer climatic variations. The department uses computer simulations, passive and active remote sensing, in situ weather instruments, and laboratory experiments to study atmospheric phenomena.

The department has 13 faculty, approximately 60 graduate students, and many staff involved in large and energetic research programs. Particular strengths include climate/earth system science, geophysical fluid dynamics, remote sensing, planetary boundary layer, atmospheric chemistry, weather systems and prediction, and oceanography. Course concentrations within the existing degree program are offered in the

areas of weather prediction, earth system science, remote sensing, and oceanography.

Course and research emphasis of the department's oceanographic component is in physical oceanography, ocean-atmosphere climate dynamics, and marine geochemical cycles. A concentration of courses in oceanography can be used to satisfy the AOS Ph.D. minor.

The department has close ties with the Center for Climatic Research, The Nelson Institute for Environmental Studies, Center for Sustainability and the Global Environment, Space Science and Engineering Center, Cooperative Institute for Meteorological Satellite Studies, National Weather Service, and the State Climatologist Office.

Job opportunities have been strong within the United States for people with graduate degrees in atmospheric and oceanic sciences. The government hires a large number of meteorologists with advanced degrees, as do many private forecasting companies and air quality consulting firms. In addition, there are openings for experts at various government and university research labs.

## FUNDING

Financial assistance is available to qualified students. The typical sources of funding are research and teaching assistantships. All applicants are considered for any available assistantships. Financial aid is handled separately from admission in the department. Students generally hear about their admission status well before any decision about financial aid is made. Prospective students should see the program website (<http://www.aos.wisc.edu/education/graduate/scholarships.html>) for additional funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREE

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the degree coursework (26 of 51 credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 19 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits of graduate coursework taken as an undergraduate at UW-Madison, as long as those credits were not applied toward an undergraduate degree. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENT: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

At least 15 credits are from lecture courses numbered 600 or above in the department. Seminars, research credits, and audited courses are not included.

An additional 10 (at least) credits are taken to satisfy the minor requirement (see below). These credits may be from the department, but cannot be used to satisfy the first requirement (15 credits from lecture courses numbered 600 or above in the department).

Students are required to take ATM OCN 900 Seminar-Meteorology.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete two broadening requirements: a minor, and a supplemental requirement.

Minor requirement:

A minor program consists of Option A (external) 10 or more course credits in one discipline or Option B (distributed) 10 or more credits in one or more departments and can include coursework in the major department. Selection of Option A requires approval of the minor department. Selection of Option B requires approval of the major department. The department monitors minor requirements.

Supplemental requirement:

The supplemental requirement is specified by the Ph.D. committee during the first Ph.D. committee meeting. Examples include (but are not limited to): an augmented minor, substantial foreign language skill, significant professional or field experience, or interdisciplinary coursework.

### OVERALL GRADUATE GPA REQUIREMENT

3.0 GPA required

## OTHER GRADE REQUIREMENTS

All grades must be C or better to count towards the degree.

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades.

Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

Academic probation:

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

Probation based on progress:

Probation is based on student status. The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

A Ph.D. committee is required in order to become a Ph.D. student. The student, under the guidance of the major professor, must form a committee of five professors consisting of the major professor, three other professors from our department, and one professor from outside the department (often from the minor department). Additional members may be added, if appropriate. Adjunct faculty can be included among the five committee members. If the committee dissolves for any reason, the candidate cannot continue in the Ph.D. program unless a new committee is formed.

The first meeting of the Ph.D. committee should normally occur after the student completes the qualifying examination, but within the same semester as the qualifying examination. Potential committee members, in deciding whether to form a Ph.D. committee, use results from the qualifying examination as well as additional information about a student's suitability for pursuing a Ph.D.

All students are required to conduct a yearly progress report meeting with their thesis committee after passing the preliminary examination.

## ASSESSMENTS AND EXAMINATIONS

Students wishing to pursue a Ph.D. are required to take a qualifying examination prior to forming a Ph.D. committee (see above regarding the formation of a Ph.D. committee). For more information about the qualifying examination, please consult the department's Qualifying Exam FAQs ([http://www.aos.wisc.edu/education/Qual\\_ExamFAQ.html](http://www.aos.wisc.edu/education/Qual_ExamFAQ.html)).

Ph.D. students are required to complete a preliminary examination by the Ph.D. committee prior to becoming a Ph.D. candidate. Prior to the preliminary examination the student works with the major professor to define an appropriate research topic. This topic is written into a several page research proposal that is given to the Ph.D. committee members a few weeks prior to the preliminary examination.

## TIME CONSTRAINTS

The Ph.D. degree should be completed within five years after establishing a Ph.D. committee. For additional time constraints please consult the Graduate School Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy>).

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Prerequisites for admission are one semester of chemistry, three semesters of calculus, one semester of differential equations, and two semesters of calculus-based physics. Prior work in atmospheric or oceanic sciences is not required, but it is beneficial. Knowledge of computer programming is recommended. Admitted students generally have GRE quantitative scores of at least 151 (650 prior scale, 56% percentile), verbal reasoning scores of 152 (490 prior scale, 56% percentile) and analytical scores of 4.0 (48% percentile), and have a GPA of better than 3.0 on a 4.0 scale. International students must submit scores from the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). Applications are also judged on academic record, letters of recommendation, prior research experience, and the statement of purpose. Ph.D. students must have an advisor identified before they can be recommended for admission.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will have an in-depth knowledge of the fields that are relevant to their research areas by taking appropriate courses not only in atmospheric and oceanic sciences, but also in related disciplines including mathematics, statistics, physics, and engineering.
- Students should be able to ask the right scientific questions: What are the important scientific problems in this field? Can a problem be solved by the available resources in a reasonable time? How to design a scientific approach to tackle the problem?
- Students read original papers of their research field to understand how previous investigators approach the problem and how they can improve on previous results.
- Students articulate research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.

- Students formulate ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.

## PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

### PEOPLE

**Faculty:** Professors Petty (chair), Ackerman, Hitchman, Liu, Martin, Morgan, Tripoli, Wang; Associate Professors Desai, Holloway, McKinley, Vimont; Assistant Professors Back, L'Ecuyer

# BACTERIOLOGY

**Administrative Unit:** Bacteriology

**College/School:** College of Agricultural and Life Sciences

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S. in Bacteriology; M.S. in Microbiology; Ph.D. in Microbiology

**Minors and Certificates:** Doctoral Minor in Microbiology

Research programs in the Department of Bacteriology encompass a variety of areas including prokaryotic and lower eukaryotic genetics, gene expression and regulation, microbial physiology and diversity including microbial photosynthesis, nitrogen fixation, molecular structure–function, nucleic acid synthesis, microbial ecology, plant–microbe interactions, symbiosis, natural products synthesis, biotechnology/industrial microbiology, food microbiology, immunology and mechanisms of pathogenesis.

The Department of Bacteriology offers a Ph.D. degree through the microbiology doctoral training program. The Department of Bacteriology and the Department of Medical Microbiology and Immunology in the School of Medicine and Public Health serve as lead departments for the joint cross-campus microbiology doctoral training program.

Incoming students have the opportunity to do laboratory rotations with any of the primary faculty, affiliate faculty, or trainers from multiple departments. This group includes more than 90 faculty members in numerous departments and programs involved in microbiology research and graduate training. In addition to this breadth of opportunities in microbiology research training, the program encompasses graduate courses offered by both departments. Please refer to the separate Microbiology listing in this catalog for more detailed information, or visit the program website.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Bacteriology, M.S. (p. 110)
- Microbiology, Doctoral Minor (p. 112)
- Microbiology, M.S. (p. 112)
- Microbiology, Ph.D. (p. 113)

## PEOPLE

**Faculty:** Professors Kaspar (chair), Ané, Currie, Donohue, Filutowicz, Forest, Gourse, Johnson, Keller, Landick, Mansfield, McMahan, Thomas, Wassarman, Yu; Associate Professors Pringle, Wang. In addition, many faculty members from other departments supervise training of graduate students.

## BACTERIOLOGY, M.S.

The primary goal of the master of science (M.S.) degree program is to give students a solid understanding of the scientific process and to provide the opportunity to obtain advanced training in microbiology. The

master's degree is the terminal degree in this program, and completion of this degree does not allow automatic admission to a Ph.D. program.

This program provides the opportunity to tailor a curriculum of advanced coursework and research to fit the needs of each student, with two different tracks (coursework or research tracks, see below). Students may acquire a general overview of microbiology or may focus on a specialized subject area in microbiology such as bacterial physiology, molecular/cell biology, food or environmental microbiology, biotechnology or medical microbiology. The self-tailored program must meet the requirements of the Department of Bacteriology and the Graduate School for the M.S. degree, as outlined below. Full-time students can expect to complete the M.S. degree in about two years. The M.S. program also can accommodate part-time students with consequent increased time to degree.

The coursework track serves students who want to acquire knowledge about current topics in microbiology primarily in a classwork setting. Examples of students who benefit from this track are those currently employed in research, clinical, or biotechnology labs seeking an advanced degree; lawyers and law students who wish to specialize in biotechnology or environmental law; and students preparing for health professions.

The research track serves students who seek to develop scientific research skills. This track is chosen by laboratory technicians who want advanced technical training; students seeking laboratory skills for employment; and students who desire laboratory experience and advanced coursework before applying to Ph.D. programs.

## FUNDING

Financial aid for students in the M.S. program is not available from the department. Some M.S. students in the research track are supported through their research advisor, but such support is available on a very limited basis.

## REQUIREMENTS

### GENERAL PROGRAM REQUIREMENTS

The following courses are required for completion of the M.S. degree for either coursework or research tracks, and may be fulfilled by courses taken prior to entrance to the M.S. program or as part of the master's program.

- General Microbiology (MICROBIO 303 Biology of Microorganisms or equivalent)
- Microbial Physiology (MICROBIO 526 Physiology of Microorganisms or equivalent)
- Microbial Genetics (MICROBIO 470 Microbial Genetics & Molecular Machines or equivalent)
- General Biochemistry (BIOCHEM 501 Introduction to Biochemistry, BIOCHEM 507 General Biochemistry I–BIOCHEM 508 General Biochemistry II, or equivalent)

In addition, students desiring the research track should have prior research experience.

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available tracks in coursework, and research

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

22 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 15 credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With permission of the program advisor, up to 8 graduate course credits from another university may be applied toward the credit requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from the UW-Madison Undergraduate degree may count toward the credit requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

No credits from the UW-Madison University Special student career may count toward the credit requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

Overall Graduate GPA Requirement

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300

or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Students accepted to the program should have taken some or all of these courses prior to admission to the program for either coursework or research tracks. Students may correct deficiencies (up to six credits) after admission, but these credits do not apply toward the credits of coursework required for the degree, and all deficiencies must be absolved before completion of the master's degree.

- Biology: two semesters
- Chemistry: four semesters of chemistry including two organic with lab component
- Math: one course in math beyond algebra/trigonometry such as calculus, statistics, or computer science.

The Graduate Record Examination (GRE) is not required for admission to the M.S. program, but scores may be submitted. International students whose undergraduate instruction was not in English must provide evidence of English proficiency by taking the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- The department's goal is to ensure that every student demonstrates understanding of the central principles of microbiology and the necessary skills for a professional career in microbiology.

- The department's goal is to ensure that every student demonstrates the ability to articulate and critique the approaches and findings in the microbiology literature.
- The department's goal is to ensure that every student demonstrates capability to identify sources, generate, and assemble data or evidence pertaining to questions in microbiology.
- The department's goal is to ensure that every student demonstrates effective writing and speaking skills.

## PROFESSIONAL CONDUCT

- The department's goal is to ensure that every student demonstrates personal and professional ethics.

## PEOPLE

**Faculty:** Professors Kaspar (chair), Ané, Currie, Donohue, Filutowicz, Forest, Gourse, Johnson, Keller, Landick, Mansfield, McMahon, Thomas, Wassarman, Yu; Associate Professors Pringle, Wang. In addition, many faculty members from other departments supervise training of graduate students.

## MICROBIOLOGY, DOCTORAL MINOR

### REQUIREMENTS

The minor in microbiology requires 10 credits of courses at the 300 level or above offered by the departments of Medical Microbiology and Immunology (M M & I courses) or Bacteriology (MICROBIO courses). At least half of the credits must come from the Microbiology Doctoral Training Program (MDTP) course list. At least one member of the student's thesis committee must be faculty in either the bacteriology or medical microbiology and immunology Departments, and will serve as the student's minor advisor.

## PEOPLE

**Faculty:** Professors Nancy Keller (program director, Medical Microbiology and Immunology), and Garret Suen (vice-director, Bacteriology) lead the current MDTP Steering Committee. For a list of more than 90 participating faculty, see the program website (<http://www.microbiology.wisc.edu>) or contact the program office.

## MICROBIOLOGY, M.S.

This award is a non-admitting, terminal degree for MDTP students who have completed appropriate coursework but leave the program prior to completion of the doctorate degree requirements.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 of 30 credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept prior graduate coursework from other institutions toward the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison. Coursework earned more than five years prior to admission to the master's degree may not be used to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison toward fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned more than five years prior to admission to the master's degree may not be used to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNIVERSITY SPECIAL

The program may decide to accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned more than five years prior to admission to the master's degree may not be used to satisfy requirements.



## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate a scientific understanding of the field of microbiology and/or immunology.
- Identify and utilize scientific methodologies and practices appropriate to the field of study.

- Articulate scientific theories, methodologies and research approaches in microbiology and/or immunology.
- Identify sources and assemble evidence pertaining to questions or challenges in the field of microbiology and/or immunology.
- Evaluate and synthesize information pertaining to questions or challenges in the field of microbiology and/or immunology.
- Communicate clearly in ways appropriate to the field of scientific study.

## PROFESSIONAL CONDUCT

- Recognize, understand and apply principles of ethical and professional conduct appropriate to the field of study.
- Understand and apply principles of laboratory safety in the field of study.

## MICROBIOLOGY, PH.D.

The Department of Bacteriology in the College of Agricultural and Life Sciences and the Department of Medical Microbiology and Immunology in the School of Medicine and Public Health (see separate course listings) administer the interdepartmental microbiology doctoral training program (MDTP). Incoming students have the opportunity to do laboratory rotations with any of the primary faculty, affiliate faculty, and trainers from multiple departments. This group includes more than 90 faculty members in numerous departments and programs involved in microbiology research and graduate training. In addition to this breadth of opportunities in microbiology research training, the program also encompasses graduate courses offered by both departments.

The Ph.D. program prepares graduates for research and teaching positions in universities and colleges, for industry or government, and for clinical microbiology.

Research emphasis includes, but is not limited to, prokaryotic (bacteria and archaea), viral and lower eukaryotic systems (fungi, oomycetes, and parasites); antibiotics and antibiotic resistance, biofilm formation; bioinformatics and computational biology; biotechnology and industrial microbiology, including biofuels; cell–cell signaling; cell motility and chemotaxis; DNA, including nucleic acid synthesis, DNA replication and recombination; food microbiology; fungal development, pathogenesis, and metabolism; gene expression and its regulation; immunology; microbial physiology and metabolism; macrophage activation and other cell immune systems; mechanisms of microbial persistence; mechanisms of pathogenesis; microbial cell division; microbial ecology; microbial microbiota and metagenomics; nitrogen fixation; quorum sensing; RNA, including molecular structure–function relationships of transfer RNA, small RNAs, RNA polymerase, and other components of transcription and translation; secondary metabolism; structural microbiology; symbioses, including host–microbe symbioses, plant–microbial interactions, animal–microbial interactions, microbe–microbe interactions; and virology, including host–virus interactions. Dissertation research emphasizes creative and innovative problem-solving using basic knowledge acquired through scientific interactions and collaborations in addition to a thorough understanding of the scientific literature.

In order to better train MDTP students for microbiology-related professions, students need a chance to gain knowledge and experience not just in academic research, but also in other fields where their microbiology education may be put to good use.

The professional development options encompass many professional development opportunities for MDTP students beyond academic research and teaching. Opportunities for professional development can consist of course work, an internship, a summer workshop, outreach experiences, or a second teaching-practicum experience.

## DOUBLE DEGREE

Students may complete a double Ph.D. degree in MDTP and another program on campus under the following conditions. The student must apply for admission to MDTP by the program's yearly deadline and be admitted using the same criteria applied to other applicants. The student must complete all requirements of the MDTP program in addition to the requirements for the other program sponsoring the double degree. The student must pass a different preliminary examination in each program. The student's dissertation committee and preliminary examination must adhere to MDTP guidelines. The Ph.D. advisor must be a trainer in the MDTP. A significant portion of the student's dissertation research must be completed in the laboratory of the Ph.D. advisor. The student's program, including any deviations, must be approved by the steering committee.

## FUNDING

Research assistantships are available for most students from department and college-level funding sources or from competitive fellowship and traineeship awards, with continued support contingent upon adequate progress in classes and research. Applicants with outstanding records will be nominated for special fellowships or for traineeships on one of several NIH training grants awarded to UW–Madison.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, up to 9 credits of coursework may be accepted from other graduate institutions. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNDERGRADUATE

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison toward fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNIVERSITY SPECIAL

The program may decide to accept up to 9 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is

assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis. A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission to MDTP is highly competitive. To qualify for admission to the microbiology program, an applicant should have a bachelor's degree from an accredited institution with a GPA of at least 3.0 (on a 4.0 scale) that includes two semesters of biology (can include microbiology); one semester of genetics; four semesters of chemistry, including two semesters of organic chemistry with lab component; one semester of biochemistry; two semesters of physics; and two semesters of calculus or one semester of calculus and one semester of statistics. Deficiencies in excess of six semester credits should be removed before enrollment. An on-line application must be accompanied by a thoughtful essay, strong letters of recommendation from three persons who are familiar with the applicant's academic ability and who can assess the applicant's potential for a research career, transcripts from all undergraduate and graduate institutions attended, and an academic resume or CV. Previous research experience is strongly recommended. All applicants must provide scores from the general Graduate Record Exam (GRE), the subject test in a related discipline is not required; students whose undergraduate degree was obtained in an institution in which English was not the primary language of instruction must provide evidence of English proficiency by taking the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) exam.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Gain a broad understanding of the microbiology principles that underlie all biological processes.
- Articulate, discuss and define limits to the theory and knowledge in microbiology.

- Think critically to address research challenges using a broad range of the theories, research methods, and approaches to scientific inquiry.
- Communicates complex ideas in a clear and understandable matter.
- Collaborate with investigators within the program, university, and beyond to advance the science of microbiology.

## PROFESSIONAL CONDUCT

- Foster professional and ethical conduct in the sciences.
- Ethical design of experimental protocols.
- Reproducibility of experimental results.
- Professional behavior in industrial, government and academic settings.

## ADDITIONAL LEARNING GOALS

- Develop communication skills that enable the articulation of research to fellow scientists and non-scientists.
- Develop teaching and mentoring skills in both lecture and laboratory settings.
- Explore career development opportunities in industry, government, academia and private industry to realize professional goals.

## PEOPLE

**Faculty:** Professors Nancy Keller (program director, Medical Microbiology and Immunology), and Garret Suen (vice-director, Bacteriology) lead the current MDTP Steering Committee. For a list of more than 90 participating faculty, see the program website (<http://www.microbiology.wisc.edu>) or contact the program office.

# BIOCHEMISTRY

**Administrative Unit:** Biochemistry

**College/School:** College of Agricultural and Life Sciences, School of Medicine and Public Health

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The Integrated Program in Biochemistry (IPiB) is a joint graduate program between the Department of Biochemistry and the Department of Biomolecular Chemistry, providing students with the opportunity to work with 50 faculty members. The program offers a Ph.D. degree with a major in biochemistry. Although an M.S. degree is officially offered, students are not admitted for a terminal master's degree.

The program has excellent research facilities and active research programs in the major areas of contemporary biochemistry, including: cell and developmental biology, chemical biology, computational biology, endocrinology, enzymology, immunology, metabolism, molecular genetics, molecular medicine, physical biochemistry and biophysics, structural biology, systems and synthetic biology, and virology. These are set in the highly interactive research environment that pervades the UW–Madison campus. Close association is maintained with other departments and programs having a biochemical orientation including animal sciences, bacteriology, biophysics, botany, cell and molecular biology, chemistry, genetics, nutritional sciences, oncology, plant pathology, and zoology. An exceptional range of research projects and advanced seminars is available to graduate students.

The program prepares students for teaching and research in academic positions, for research in government service, and for research and development work in industry.

## DUAL DEGREES

The program participates with the School of Medicine and Public Health in offering a joint program for students wishing to complete both the M.D. and Ph.D. degrees. The basic prerequisites and degree requirements for the Ph.D. in the M.D./Ph.D. program are identical to those for the major in biochemistry; however, the minor may be taken in medical sciences. For the prerequisites and degree requirements for the M.D. degree, as well as the online application form, see Medical Scientist Training Program (<http://mstp.med.wisc.edu>).

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Biochemistry, Doctoral Minor (p. 116)
- Biochemistry, M.S. (p. 116)
- Biochemistry, Ph.D. (p. 118)

## PEOPLE

**Faculty:** Professors B. Fox (chair, Department of Biochemistry), Kiley (chair, Department of Biomolecular Chemistry), Amasino, Ansari, Attie, Bednarek, Brow, Butcher, Clagett-Dame, Coon, Cox, Craig, Denu, C. Fox, Friesen, Hayes, Holden, Hull, Keck, Kimble, Landick, Markley, Martin, Mitchell, Mosher, Ntambi, Palmenberg, Pike, Ralph, Rayment, Record,

Sheets, Sussman, Wickens; Associate Professors Audhya, Chanda, Craciun, Henzler-Wildman, Pagliarini, Senes, Weibel; Assistant Professors Engin, Harrison, Hoskins, Lewis, Merrins, Raman, Romero, Venturelli, Wildonger

## BIOCHEMISTRY, DOCTORAL MINOR

### REQUIREMENTS

For a minor in biochemistry, a Ph.D. candidate must complete a required course series and earn a total of 16 graduate-level credits in advanced biochemistry courses (600 level or above). See the IPiB website (<http://ipib.wisc.edu>) for more details.

### PEOPLE

**Faculty:** Professors B. Fox (chair, Department of Biochemistry), Kiley (chair, Department of Biomolecular Chemistry), Amasino, Ansari, Attie, Bednarek, Brow, Butcher, Clagett-Dame, Coon, Cox, Craig, Denu, C. Fox, Friesen, Hayes, Holden, Hull, Keck, Kimble, Landick, Markley, Martin, Mitchell, Mosher, Ntambi, Palmenberg, Pike, Ralph, Rayment, Record, Sheets, Sussman, Wickens; Associate Professors Audhya, Chanda, Craciun, Henzler-Wildman, Pagliarini, Senes, Weibel; Assistant Professors Engin, Harrison, Hoskins, Lewis, Merrins, Raman, Romero, Venturelli, Wildonger

## BIOCHEMISTRY, M.S.

The Integrated Program in Biochemistry (IPiB) is a joint graduate program between the Department of Biochemistry and the Department of Biomolecular Chemistry, providing students with the opportunity to work with 50 faculty members. The program offers a Ph.D. degree with a major in biochemistry. Although an M.S. degree is officially offered, students are not admitted for a terminal master's degree.

The program has excellent research facilities and active research programs in the major areas of contemporary biochemistry, including: cell and developmental biology, chemical biology, computational biology, endocrinology, enzymology, immunology, metabolism, molecular genetics, molecular medicine, physical biochemistry and biophysics, structural biology, systems and synthetic biology, and virology. These are set in the highly interactive research environment that pervades the UW–Madison campus. Close association is maintained with other departments and programs having a biochemical orientation including animal sciences, bacteriology, biophysics, botany, cell and molecular biology, chemistry, genetics, nutritional sciences, oncology, plant pathology, and zoology. An exceptional range of research projects and advanced seminars is available to graduate students.

The program prepares students for teaching and research in academic positions, for research in government service, and for research and development work in industry.

## DUAL DEGREES

The program participates with the School of Medicine and Public Health in offering a joint program for students wishing to complete both the M.D. and Ph.D. degrees. The basic prerequisites and degree requirements for the Ph.D. in the M.D./Ph.D. program are identical to those for the major

in biochemistry; however, the minor may be taken in medical sciences. For the prerequisites and degree requirements for the M.D. degree, as well as the online application form, see Medical Scientist Training Program (<http://mstp.med.wisc.edu>).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.S.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

48 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

42 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

All coursework must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept up to 6 credits prior graduate coursework from other institutions towards the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW-Madison.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the graduate degree.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

No credits taken as a University Special student are allowed to count toward the graduate degree.

#### CREDITS PER TERM ALLOWED

12 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student must have an IPIB faculty thesis advisor. The thesis advisor advises the student about coursework, supervises the student's research, and acts as a mentor to the student through the student's graduate career. The thesis advisor must approve the student's coursework before registration for a given semester and must also approve any subsequent changes to it.

A Ph.D. thesis committee is composed of at least five graduate University faculty members, including the thesis advisor. The thesis committee is empowered by the Program to advise the student about certification, administer the preliminary examination, oversee yearly progress reports, approve thesis composition, and conduct the final Ph.D. examination.

### ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D (p. 118).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Gain a broad understanding of the biochemical principles that underlie all biological processes.
- Become aware of the current limitations of the state of understanding of this discipline and the strategies that are required to advance the field.
- Formulate and design new approaches that extend and apply biochemical principles beyond their current boundaries.

- Explore career development opportunities in industry, government and academia to realize professional goals and paths.
- Develop teaching and mentoring skills in both lecture and laboratory settings.

## PROFESSIONAL CONDUCT

- Foster professional and ethical conduct in the sciences, including but not limited to: exposition of the scientific method; ethical design of experimental protocols; reproducibility in science; professional behavior in industrial, government, and academic settings; documentation of scientific results; communication to other scientists and the public; peer review; and confidentiality.

## PEOPLE

**Faculty:** Professors B. Fox (chair, Department of Biochemistry), Kiley (chair, Department of Biomolecular Chemistry), Amasino, Ansari, Attie, Bednarek, Brow, Butcher, Clagett-Dame, Coon, Cox, Craig, Denu, C. Fox, Friesen, Hayes, Holden, Hull, Keck, Kimble, Landick, Markley, Martin, Mitchell, Mosher, Ntambi, Palmenberg, Pike, Ralph, Rayment, Record, Sheets, Sussman, Wickens; Associate Professors Audhya, Chanda, Craciun, Henzler-Wildman, Pagliarini, Senes, Weibel; Assistant Professors Engin, Harrison, Hoskins, Lewis, Merrins, Raman, Romero, Venturelli, Wildonger

## BIOCHEMISTRY, PH.D.

The Integrated Program in Biochemistry (IPiB) is a joint graduate program between the Department of Biochemistry and the Department of Biomolecular Chemistry, providing students with the opportunity to work with 50 faculty members. The program offers a Ph.D. degree with a major in biochemistry. Although an M.S. degree is officially offered, students are not admitted for a terminal master's degree.

The program has excellent research facilities and active research programs in the major areas of contemporary biochemistry, including: cell and developmental biology, chemical biology, computational biology, endocrinology, enzymology, immunology, metabolism, molecular genetics, molecular medicine, physical biochemistry and biophysics, structural biology, systems and synthetic biology, and virology. These are set in the highly interactive research environment that pervades the UW–Madison campus. Close association is maintained with other departments and programs having a biochemical orientation including animal sciences, bacteriology, biophysics, botany, cell and molecular biology, chemistry, genetics, nutritional sciences, oncology, plant pathology, and zoology. An exceptional range of research projects and advanced seminars is available to graduate students.

The program prepares students for teaching and research in academic positions, for research in government service, and for research and development work in industry.

## DUAL DEGREES

The program participates with the School of Medicine and Public Health in offering a joint program for students wishing to complete both the M.D. and Ph.D. degrees. The basic prerequisites and degree requirements for the Ph.D. in the M.D./Ph.D. program are identical to those for the major in biochemistry; however, the minor may be taken in medical sciences. For the prerequisites and degree requirements for the M.D. degree, as well

as the online application form, see Medical Scientist Training Program (<http://mstp.med.wisc.edu>).

## FUNDING

IPiB offers stipends in the form of traineeships, research assistantships, or fellowships to all Ph.D. candidates, and assists those with outstanding records in competing for University and national awards. The program guarantees a full stipend (\$27,000 for 2017–18) for all its Ph.D. candidates who remain in good standing in the program. In addition to the stipend, all students receive tuition remission and comprehensive health insurance.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

54 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

42 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

All coursework must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept up to 6 credits prior graduate coursework from other institutions towards the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the graduate degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No credits taken as a University Special student are allowed to count toward the graduate degree.

## CREDITS PER TERM ALLOWED

Non-dissertator status: 12 credits. Dissertator status: 3 credits.

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student must have an IPiB faculty thesis advisor. The thesis advisor advises the student about coursework, supervises the student's research, and acts as a mentor to the student through the student's graduate career. The thesis advisor must approve the student's coursework before registration for a given semester and must also approve any subsequent changes to it.

A Ph.D. thesis committee is composed of at least five graduate University faculty members, including the thesis advisor. The thesis committee is empowered by the Program to advise the student about certification, administer the preliminary examination, oversee yearly progress reports, approve thesis composition, and conduct the final Ph.D. examination.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

To qualify for admission to IPiB, an applicant must complete a bachelor's degree at a recognized, accredited college or university. The basic background for graduate study in biochemistry ordinarily would be provided by an undergraduate degree in biochemistry, chemistry, physics, or in one of the biological or medical sciences. Coursework in biochemistry, organic chemistry, physics, and physical chemistry is required. (Admission might be granted without one or more of these course requirements, but the deficiency must be made up within the student's first two years of graduate study.) The applicant's undergraduate grade point average must be at least 3.0 (4.0 scale). Graduate Record Exam (GRE) scores are required of all applicants. Advanced (Subject) GRE scores are strongly recommended.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Gain a broad understanding of the biochemical principles that underlie all biological processes.
- Become aware of the current limitations of the state of understanding of this discipline and the strategies that are required to advance the field.
- Formulate and design new approaches that extend and apply biochemical principles beyond their current boundaries.
- Conduct independent research using a diverse breadth of biochemical processes.
- Think critically to address research challenges using a broad range of the theories, research methods, and approaches to scientific inquiry.
- Collaborate with investigators within the program, university, and beyond since current and future advances in the biomolecular sciences demand interdisciplinary skills.

### PROFESSIONAL CONDUCT

- Foster professional and ethical conduct in the sciences, including but not limited to: exposition of the scientific method; ethical design of experimental protocols; reproducibility in science; professional behavior in industrial, government, and academic settings; documentation of scientific results; communication to other scientists and the public; peer review; and confidentiality.

### ADDITIONAL LEARNING GOALS

- Develop communications skills that enable the articulation of research to fellow scientists and non-scientists.
- Explore career development opportunities in industry, government and academia to realize professional goals and paths.
- Develop teaching and mentoring skills in both lecture and laboratory settings.

## PEOPLE

**Faculty:** Professors B. Fox (chair, Department of Biochemistry), Kiley (chair, Department of Biomolecular Chemistry), Amasino, Ansari, Attie, Bednarek, Brow, Butcher, Clagett-Dame, Coon, Cox, Craig, Denu, C. Fox, Friesen, Hayes, Holden, Hull, Keck, Kimble, Landick, Markley, Martin, Mitchell, Mosher, Ntambi, Palmenberg, Pike, Ralph, Rayment, Record,

Sheets, Sussman, Wickens; Associate Professors Audhya, Chanda, Craciun, Henzler-Wildman, Pagliarini, Senes, Weibel; Assistant Professors Engin, Harrison, Hoskins, Lewis, Merrins, Raman, Romero, Venturelli, Wildonger



# BIOLOGICAL SYSTEMS ENGINEERING

**Administrative Unit:** Biological Systems Engineering  
**College/School:** College of Agricultural and Life Sciences  
**Admitting Plans:** M.S., Ph.D.  
**Degrees Offered:** M.S., Ph.D.  
**Minors and Certificates:** Doctoral Minor

Graduate work in the Department of Biological Systems Engineering (BSE) leads to the master of science and doctor of philosophy degrees. Graduates of the program help fill the need for highly educated engineers in industry, consulting firms, government agencies, and educational institutions.

Students who undertake graduate studies in BSE normally have as their goal a better understanding of the current theories, principles, issues, and problems in biological systems. They desire a better understanding of how knowledge is generated, how it is critically evaluated, and how solutions to problems are generated. Graduate studies improve the ability of students to think critically and creatively, and to synthesize, analyze, and integrate ideas for decision making and problem solving.

The department offers students an opportunity to undertake research and advanced study in different specialization areas such as biological systems, environmental quality and natural resource engineering, waste management, food and bioprocess engineering and food safety, machinery systems, bioresources and biorefining, and agricultural safety and health.

Graduate research assistantships, project assistantships, and fellowships are available on a highly competitive basis.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Biological Systems Engineering, M.S. (p. 121)
- Biological Systems Engineering, Ph.D. (p. 122)

## PEOPLE

**Faculty:** Professors Reinemann (chair), Anex, Bohnhoff, Etzel, Gunasekaran, Hanna, Hartel, Holmes, Kammel, Karthikeyan, Kung, O'Leary, Ralph, Shinnars, Straub, A. Thompson, Walsh; Associate Professor Pan; Assistant Professors Digman, Larson, Luck, Runge

## BIOLOGICAL SYSTEMS ENGINEERING, M.S.

Graduate work in the Department of Biological Systems Engineering (BSE) leads to the master of science and doctor of philosophy degrees. Graduates of the program help fill the need for highly educated engineers in industry, consulting firms, government agencies, and educational institutions.

Students who undertake graduate studies in BSE normally have as their goal a better understanding of the current theories, principles, issues, and problems in biological systems. They desire a better understanding of how knowledge is generated, how it is critically evaluated, and how solutions to problems are generated. Graduate studies improve the ability of students to think critically and creatively, and to synthesize, analyze, and integrate ideas for decision making and problem solving.

The department offers students an opportunity to undertake research and advanced study in different specialization areas such as biological systems, environmental quality and natural resource engineering, waste management, food and bioprocess engineering and food safety, machinery systems, bioresources and biorefining, and agricultural safety and health.

Graduate research assistantships, project assistantships, and fellowships are available on a highly competitive basis.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With approval of the Graduate Research and Instructions Committee, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Students may count up to 6 credits of coursework 400-level and above from a UW-Madison undergraduate degree toward the degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With approval of the Graduate Research and Instructions Committee, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

12 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The department requires that students have a strong engineering background for admission to its graduate program. Most applicants have a bachelor of science degree from an ABET/EAC–accredited engineering program or an engineering undergraduate degree from an international institution. Applicants who do not have a bachelor of science degree from an ABET/EAC–accredited engineering program may be admitted with a stipulation that they complete supplemental work. Contact the department for details concerning additional requirements. Applicants are evaluated based on their academic record and educational objectives and letters of reference.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Reinemann (chair), Anex, Bohnhoff, Etzel, Gunasekaran, Hanna, Hartel, Holmes, Kammel, Karthikeyan, Kung, O'Leary, Ralph, Shinnars, Straub, A. Thompson, Walsh; Associate Professor Pan; Assistant Professors Digman, Larson, Luck, Runge

## BIOLOGICAL SYSTEMS ENGINEERING, PH.D.

Graduate work in the Department of Biological Systems Engineering (BSE) leads to the master of science and doctor of philosophy degrees. Graduates of the program help fill the need for highly educated engineers in industry, consulting firms, government agencies, and educational institutions.

Students who undertake graduate studies in BSE normally have as their goal a better understanding of the current theories, principles, issues, and problems in biological systems. They desire a better understanding of how knowledge is generated, how it is critically evaluated, and how solutions to problems are generated. Graduate studies improve the ability of students to think critically and creatively, and to synthesize, analyze, and integrate ideas for decision making and problem solving.

The department offers students an opportunity to undertake research and advanced study in different specialization areas such as biological systems, environmental quality and natural resource engineering, waste management, food and bioprocess engineering and food safety, machinery systems, bioresources and biorefining, and agricultural safety and health.

Graduate research assistantships, project assistantships, and fellowships are available on a highly competitive basis.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### DOCTORAL DEGREES

Ph.D.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept prior graduate coursework from other institutions toward the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison toward fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework

earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

The program may decide to accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

#### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00

#### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

#### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

#### ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

#### ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The department requires that students have a strong engineering background for admission to its graduate program. Most applicants have a bachelor of science degree from an ABET/EAC–accredited engineering program or an engineering undergraduate degree from an international institution. Applicants who do not have a bachelor of science degree from an ABET/EAC–accredited engineering program may be admitted with a stipulation that they complete supplemental work. Contact the department for details concerning additional requirements. Applicants are evaluated based on their academic record and educational objectives and letters of reference.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- The doctoral level learning goals are inclusive of the program's master-level learning goals .
- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Reinemann (chair), Anex, Bohnhoff, Etzel, Gunasekaran, Hanna, Hartel, Holmes, Kammel, Karthikeyan, Kung, O'Leary, Ralph, Shinnars, Straub, A. Thompson, Walsh; Associate Professor Pan; Assistant Professors Digman, Larson, Luck, Runge

## BIOMEDICAL ENGINEERING

**Administrative Unit:** Biomedical Engineering

**College/School:** College of Engineering

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

Biomedical engineering is the application of engineering tools for solving problems in biology and medicine. It is an engineering discipline that is practiced by professionals trained primarily as engineers, who specialize in medical and biological applications. The area of study combines fundamentals of the biomedical sciences with advanced engineering methods of analysis and design, and brings together these two fields in order to contribute to the design of new medical instruments and devices, apply engineering principles for understanding and repairing the human body and other biological systems, and use engineering tools for decision making and cost containment.

The interdisciplinary degree program offers a course of graduate study leading to the master of science or the doctor of philosophy degrees in biomedical engineering. The Department of Biomedical Engineering should be of interest to students who wish to practice engineering or engage in research in an engineering specialization in medicine and biology. An individualized course of study is planned with a faculty advisor. Biomedical engineering faculty and affiliated faculty come from the various colleges and professional schools throughout the university. They specialize in biomedical engineering areas as diverse as biomechanics, bioinstrumentation, biomedical imaging and biophotonics, micro and nano technology, systems biology, biomaterials, cellular engineering, tissue engineering, neuroengineering, and rehabilitation and human performance. A list of biomedical engineering faculty, affiliated faculty, and their respective areas of specialization is available from the department website.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Biomedical Engineering, Doctoral Minor (p. 125)
- Biomedical Engineering, M.S. (p. 125)
- Biomedical Engineering, Ph.D. (p. 127)
- Quantitative Biology, Doctoral Minor (p. 128)

### PEOPLE

Faculty: J. Williams (chair), R. Ashton, D. Beebe, W. Block, C. Brace, P. Campagnola, N. Chesler, S. Gong, J. Huisken, P. Keely, P. Kreeger, W. Li, M. McClean, K. Masters, M. Meyerand, W. Murphy, J. Rogers, K. Saha, M. Skala, D. Thelen, W. Tompkins, R. Vanderby, J. Webster; Instructional Staff and Faculty Associates: A. Nimunkar, J. Puccinelli, T. Puccinelli, A. Suminski, J. Towles, and M. Tyler. See also the BME Directory. (<http://directory.engr.wisc.edu/bme>)

## BIOMEDICAL ENGINEERING, DOCTORAL MINOR

## BIOMEDICAL ENGINEERING, M.S.

Biomedical engineering is the application of engineering tools for solving problems in biology and medicine. It is an engineering discipline that is practiced by professionals trained primarily as engineers, who specialize in medical and biological applications. The area of study combines fundamentals of the biomedical sciences with advanced engineering methods of analysis and design, and brings together these two fields in order to contribute to the design of new medical instruments and devices, apply engineering principles for understanding and repairing the human body and other biological systems, and use engineering tools for decision making and cost containment.

The interdisciplinary degree program offers a course of graduate study leading to the master of science or the doctor of philosophy degrees in biomedical engineering. The Department of Biomedical Engineering should be of interest to students who wish to practice engineering or engage in research in an engineering specialization in medicine and biology. An individualized course of study is planned with a faculty advisor. Biomedical engineering faculty and affiliated faculty come from the various colleges and professional schools throughout the university. They specialize in biomedical engineering areas as diverse as biomechanics, bioinstrumentation, biomedical imaging and biophotonics, micro and nano technology, systems biology, biomaterials, cellular engineering, tissue engineering, neuroengineering, and rehabilitation and human performance. A list of biomedical engineering faculty, affiliated faculty, and their respective areas of specialization is available from the department website.

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.S.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to apply graduate work from other institutions toward their degree. Prior graduate coursework from other institutions may not count toward the minimum graduate residence credit requirement.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Fulfillment of minimum graduate degree credit requirement with prior UW–Madison undergraduate coursework is allowed up to 6 credits numbered 700 or above in engineering-degree-granting programs or from the approved list. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements. Prior coursework from the UW–Madison undergraduate career may not count toward the minimum graduate residence credit requirement.

## PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL

A maximum of 15 credits from the UW–Madison University Special student career may count toward program requirements.

Minimum graduate resident credits requirement and minimum graduate degree credit requirement: allowed up to 15 credits numbered 300 or above.

Minimum graduate coursework (50%) requirement: allowed up to 15 credits numbered 700 or above.

Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

PHYSIOL 335 Physiology or 3 credits other bioscience such as cell biology; at least 15 credits of courses in an area of specialization (e.g., bioinstrumentation, biomedical computing, biomedical signal processing, biomaterials, biomechanics, rehabilitation engineering); at least 12 credits of engineering coursework 400 level or above; two semesters of graduate seminars. All course choices require prior approval and must meet the spirit of the biomedical engineering master's degree.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENTS AND EXAMINATIONS

Other assessments: Consult with the program.

Examinations: No.

## TIME CONSTRAINTS

No program-specific time constraints.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

To be admitted to the program, applicants normally are required to have an undergraduate degree in engineering (biomedical, chemical, electrical, industrial, mechanical, etc.) or physical science from an ABET-accredited program or its equivalent. Each application is judged on the basis of previous academic record, Graduate Record Exam (GRE) scores for the general test, three letters of recommendation, and the statement of purpose. Students admitted to the program may be required to satisfy deficiency course requirements.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

### PROFESSIONAL CONDUCT

- recognize and apply principles of ethical and professional conduct.

## PEOPLE

Faculty: J. Williams (chair), R. Ashton, D. Beebe, W. Block, C. Brace, P. Campagnola, N. Chesler, S. Gong, J. Huisken, P. Keely, P. Kreeger, W. Li, M. McClean, K. Masters, M. Meyerand, W. Murphy, J. Rogers, K. Saha, M. Skala, D. Thelen, W. Tompkins, R. Vanderby, J. Webster; Instructional Staff and Faculty Associates: A. Nimunkar, J. Puccinelli, T. Puccinelli, A. Suminski, J. Towles, and M. Tyler. See also the BME Directory. (<http://directory.engr.wisc.edu/bme>)

## BIOMEDICAL ENGINEERING, PH.D.

Biomedical engineering is the application of engineering tools for solving problems in biology and medicine. It is an engineering discipline that is practiced by professionals trained primarily as engineers, who specialize in medical and biological applications. The area of study combines fundamentals of the biomedical sciences with advanced engineering methods of analysis and design, and brings together these two fields in order to contribute to the design of new medical instruments and devices, apply engineering principles for understanding and repairing the human body and other biological systems, and use engineering tools for decision making and cost containment.

The interdisciplinary degree program offers a course of graduate study leading to the master of science or the doctor of philosophy degrees in biomedical engineering. The Department of Biomedical Engineering should be of interest to students who wish to practice engineering or engage in research in an engineering specialization in medicine and biology. An individualized course of study is planned with a faculty advisor. Biomedical engineering faculty and affiliated faculty come from the various colleges and professional schools throughout the university. They specialize in biomedical engineering areas as diverse as biomechanics, bioinstrumentation, biomedical imaging and biophotonics, micro and nano technology, systems biology, biomaterials, cellular engineering, tissue engineering, neuroengineering, and rehabilitation and human performance. A list of biomedical engineering faculty, affiliated faculty, and their respective areas of specialization is available from the department website.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

60 credits (30 credits beyond the M.S. degree requirements)

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (30 credits out of 60 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Allowed only if approved by the student's graduate program. Prior graduate coursework from other institutions may not count toward the minimum graduate residence credit requirement.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Fulfillment of Minimum Graduate Degree Credit Requirement with prior UW-Madison undergraduate coursework is allowed up to 6 credits numbered 700 or above in engineering-degree-granting programs or from the approved list. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements. Prior coursework from the UW-Madison undergraduate career may not count toward the minimum graduate residence credit requirement.

### PRIOR COURSEWORK REQUIREMENT: UW-MADISON UNIVERSITY SPECIAL

A maximum of 15 credits from the UW-Madison University Special student career may count toward program requirements.

Minimum graduate resident credits requirement and minimum graduate degree credit requirement: allowed up to 15 credits numbered 300 or above.

Minimum graduate coursework (50%) requirement: allowed up to 15 credits numbered 700 or above.

Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

PHYSIOL 335 Physiology or 3 credits other bioscience such as cell biology; at least 15 credits of courses in an area of specialization (e.g., bioinstrumentation, biomedical computing, biomedical signal processing, biomaterials, biomechanics, rehabilitation engineering); at least 12 credits of engineering coursework 400 level or above; two semesters of graduate seminars. All course choices require prior approval and must meet the spirit of the biomedical engineering degree.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Breadth is provided via interdisciplinary training (minor requirement waived): The central aim of biomedical engineers is to unravel gaps in biological knowledge through the use of engineering principles. Thus, the doctoral program is inherently interdisciplinary. Prior to obtaining a Ph.D. warrant, students will prepare a summary of their effort in interdisciplinary coursework and training. The purpose of the summary will be to document the effort to meet the spirit of the minor requirement. The summary must be approved by the student's thesis committee and filed with the department. Students may elect to pursue a doctoral minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. An advisor is a faculty member from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In the case where no thesis adviser has been identified, an advisor such as the associate chair for graduate advising is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

## ASSESSMENTS AND EXAMINATIONS

Candidates are required to pass a comprehensive qualifying examination and preliminary examination.

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Candidates are required to pass a comprehensive qualifying examination taken within two years of entering the graduate program. Candidates are required to prepare their preliminary examination within one year after competition of their qualifying exams.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

To be admitted to the program, applicants normally are required to have an undergraduate degree in engineering (biomedical, chemical, electrical, industrial, mechanical, etc.) or physical science from an ABET-accredited program or its equivalent. Each application is judged on the basis of previous academic record, Graduate Record Exam (GRE) scores for the general test, three letters of recommendation, and the statement of purpose. Students admitted to the program may be required to satisfy deficiency course requirements.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate an ability to synthesize knowledge from a subset of the biological and physical sciences.
- conduct original research.
- demonstrate an ability to create new knowledge and communicate it to their peers.

### PROFESSIONAL CONDUCT

- fosters ethical and professional conduct.

## PEOPLE

Faculty: J. Williams (chair), R. Ashton, D. Beebe, W. Block, C. Brace, P. Campagnola, N. Chesler, S. Gong, J. Huisken, P. Keely, P. Kreeger, W. Li, M. McClean, K. Masters, M. Meyerand, W. Murphy, J. Rogers, K. Saha, M. Skala, D. Thelen, W. Tompkins, R. Vanderby, J. Webster; Instructional Staff and Faculty Associates: A. Nimunkar, J. Puccinelli, T. Puccinelli, A. Suminski, J. Towles, and M. Tyler. See also the BME Directory. (<http://directory.engr.wisc.edu/bme>)

## QUANTITATIVE BIOLOGY, DOCTORAL MINOR



## BIostatistics AND MEDICAL INFORMATICS

**Administrative Unit:** Biostatistics and Medical Informatics

**College/School:** School of Medicine and Public Health

**Admitting Plans:** M.S.

**Degrees Offered:** M.S. in Biomedical Data Science

**Minors and Certificates:** Graduate/Professional Certificate in Bioinformatics

The 31-credit M.S. degree program in biomedical data science covers core concepts and allows for concentrated coursework, in both methodology and application. The graduate/professional certificate in bioinformatics is intended for students currently enrolled in medical school or biological science graduate programs at UW–Madison who are interested in bioinformatics training.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Bioinformatics, Graduate/Professional Certificate (p. 129)
- Biomedical Data Science, M.S. (p. 129)

## BIOINFORMATICS, GRADUATE/PROFESSIONAL CERTIFICATE

The graduate/professional certificate in bioinformatics is intended for students currently enrolled in medical school or biological science graduate programs at UW–Madison who are interested in bioinformatics training. This program provides formal training in the use and application of bioinformatics methods to solve problems in molecular biology. The goal is to give students enough basic knowledge to continue their own research and to collaborate effectively with computer scientists specializing in bioinformatic methods.

### REQUIREMENTS

The graduate/professional certificate in bioinformatics consists of four courses for a total of 12 credits. Three of the courses are required; one is an elective. Depending on their course and/or research load, students are given two years to complete the program.

### ADMISSIONS

Students applying for the graduate/professional certificate program in bioinformatics submit application materials to the Bioinformatics Admissions Committee in the Department of Biostatistics and Medical Informatics.

## BIOMEDICAL DATA SCIENCE, M.S.

The 31-credit M.S. degree program in biomedical informatics covers core concepts and allows for concentrated coursework, in both methodology and application. The goal of the program is to prepare graduates to

1. understand and apply key concepts and methodologies from computer science and statistics to biology and biomedicine;
2. demonstrate knowledge of biological, biomedical, clinical, and population health concepts and problems; and
3. contribute to the solutions of the central computational problems in biology and medicine, using methods from computer science, statistics, and engineering.

The curriculum has two tracks with substantial overlap. The professional track is intended for students who have an undergraduate degree in computer science, engineering, biology, or a health-related field, and are interested in a terminal M.S. degree that will equip them to work as a biomedical informatics professional in industry, a hospital, or a research lab. The research track is for students who have an advanced degree in a clinical field, and are interested in doing research that has a significant biomedical informatics component.

### REQUIREMENTS

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available professional, and research tracks

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 or 31 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the coursework (15 out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, students are allowed up to 7 credits numbered 300 or above from a UW–Madison undergraduate degree are allowed to count toward the degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of course work numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

B M I/COMP SCI 576 Introduction to Bioinformatics, B M I/COMP SCI 567 Medical Image Analysis, B M I/MEDICINE 918 Health Informatics for Medical Students, and B M I/STAT 541 Introduction to Biostatistics, B M I/POP HLTH 551 Introduction to Biostatistics for Population Health, or STAT/F&W ECOL/HORT 571 Statistical Methods for Bioscience I.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all core curriculum coursework.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their advisor, scheduled by December 17 and completed by April 30. Failure to do so will result in a hold being placed on the student's registration.

## ASSESSMENTS AND EXAMINATIONS

No formal examination required. The research track requires a research project of 3–6 credits.

## TIME CONSTRAINTS

If students have been absent for five or more years, they must file a new Graduate School application for admission and submit it with a new application fee. Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Students may count the coursework completed before their absence for meeting graduate degree-credit requirements; the

Graduate School will not count that work toward the Graduate School's minimum residence credit requirement.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Potential students include both those with bachelor's degrees in an area of data-science (e.g., computer science, statistics), as well as health professionals and clinicians (e.g., M.D.'s, Pharm.D.'s, DNP's, R.N.'s). It is expected that admitted candidates will have demonstrated an aptitude for computer science and math, fundamental programming skills, knowledge of data structures and algorithms, and at least two semesters of college calculus. We will however consider candidates who have a wide range of undergraduate backgrounds; providing opportunities to develop necessary skills immediately upon entering the program.

Applicants are evaluated on their previous academic record, GRE or MCAT scores, letters of recommendation, and a personal statement. For additional information about admission to the program, see M.S. Program in Biomedical Informatics ([https://www.biostat.wisc.edu/content/ms\\_program\\_in\\_biomedical\\_data\\_science](https://www.biostat.wisc.edu/content/ms_program_in_biomedical_data_science)) on the department website. All applications must be submitted online.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Understand, apply, and evaluate common informatics theories, methods, and tools related to biological and biomedical problems, health care and public health.
- Apply, adapt, and validate an existing approach to a specific biomedical and health problem.
- Produce solutions that address academic or industrial needs using informatics tools and knowledge.
- Evaluate the impact of biomedical informatics applications and interventions.
- Understand the challenges and limitations of technological solutions.
- Demonstrate scholarly oral and written presentations.

### PROFESSIONAL CONDUCT

Adhere to the professional and legal standards of conduct in biomedical informatics.

## PEOPLE

**Faculty:** Brennan, Broman, Buchanan, Burnside, Chappell, Chung, Coen, Craven, DeMets, Dewey, Dyer, Fischer, Gangnon, Gianola, Gitter, Keles, Kendziorski, Kim, Lindstrom, Mendonça, Newton, Page, Palta, Patel, Peissig, Rathouz, Rosa, Rosenberg, Roy, Shavlik, Si, Singh, Sorkness, Wahba, Wang, Yandell, Yu, Zhang

# BOTANY

**Administrative Unit:** Botany

**College/School:** College of Letters & Science

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The Department of Botany consists of 22 faculty members with about 40 graduate students pursuing M.S. and Ph.D. degrees. The American Council on Education Rating of Graduate Program Quality ranks the department among the top five departments of botany in the country.

Graduate students work with faculty and staff on a range of projects in plant biology at all levels of organization, from molecules, through cells and organs, to populations, communities, and lineages of organisms. Major research areas include molecular, cellular, and developmental biology; structural plant biology; ecology; evolution; and systematics. We also provide advanced instruction and opportunities for research in phycology, bryology, mycology, ethnobotany, paleoecology, conservation and restoration ecology, taxonomy, genetics, and physiology.

Increasingly, graduate student projects encompass two or more of these categories. Master's students may complete a non-thesis program in conservation or restoration ecology designed to prepare them for careers in environmental consulting, natural resource agencies, and nongovernmental organizations.

Students interested in fields bordering botany will find rich opportunities for course work, collaborative research, and seminars in many other departments and schools such as Agronomy, Bacteriology, Biochemistry, Chemistry, Engineering, Entomology, Forest and Wildlife Ecology, Genetics, Geography, Geoscience, Horticulture, Physics, Plant Breeding/Plant Genetics, Plant Pathology, Soil Science, Zoology, and the Nelson Institute for Environmental Studies. Interdisciplinary work is encouraged.

Graduate study in the Department of Botany requires a combination of advanced course work, participation in seminars, and original research. Course requirements follow one of five tracks: general botany; ecology; evolution; molecular, cellular, and developmental biology; or the non-thesis master's degree in conservation and restoration ecology. The department encourages students to pursue independent research soon after arriving. In consultation with the faculty advisor, each student selects a track that includes courses and research topics related to his or her interests and training in the array of techniques and approaches needed to pursue research.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Botany, Doctoral Minor (p. 131)
- Botany, M.S. (p. 131)
- Botany, Ph.D. (p. 133)

## PEOPLE

**Faculty:** Professors Baum (chair), Cameron, Fernandez, Gilroy, Givnish, Graham, Larget, Otegui, Spalding, Sytsma, Waller, J. Zedler; Associate Professors Ane, Emshwiller, Hotchkiss, Pringle; Assistant Professors

Keefover-Ring, Maeda, McCulloh; Affiliate and Adjunct Faculty: Amasino, Brunet, Spooner, Wiedenhoft, P. Zedler

## BOTANY, DOCTORAL MINOR

Any student enrolled in a UW–Madison doctoral program can pursue a doctoral minor in Botany. The doctoral minor offers training in the field of Botany and can be tailored to a student's specific interests. A doctoral minor in Botany is an excellent way to gain a fundamental breadth of understanding of the basic properties of plant life.

## REQUIREMENTS

Graduate students who wish to pursue an Option A external minor in the Botany department should consult a faculty member within Botany (their potential minor professor) or the chair of the Botany graduate committee. Courses are chosen in conjunction with the chosen Botany faculty who serves as the minor advisor, and the student's departmental advisor. A student may earn a doctoral minor in Botany with 9 credits minimum in Botany, including a seminar course, while in residence at UW-Madison. All 9 credits are either exclusively graduate-level Botany courses numbered 700 and above or courses numbered 300 and above and identified as designed for graduate work. Directed study courses do not count toward the minor.

## PEOPLE

**Faculty:** Professors Baum (chair), Cameron, Fernandez, Gilroy, Givnish, Graham, Larget, Otegui, Spalding, Sytsma, Waller, J. Zedler; Associate Professors Ane, Emshwiller, Hotchkiss, Pringle; Assistant Professors Keefover-Ring, Maeda, McCulloh; Affiliate and Adjunct Faculty: Amasino, Brunet, Spooner, Wiedenhoft, P. Zedler

## BOTANY, M.S.

The Department of Botany consists of 22 faculty members with about 40 graduate students pursuing M.S. and Ph.D. degrees. The American Council on Education Rating of Graduate Program Quality ranks the department among the top five departments of botany in the country.

Graduate students work with faculty and staff on a range of projects in plant biology at all levels of organization, from molecules, through cells and organs, to populations, communities, and lineages of organisms. Major research areas include molecular, cellular, and developmental biology; structural plant biology; ecology; evolution; and systematics. We also provide advanced instruction and opportunities for research in phycology, bryology, mycology, ethnobotany, paleoecology, conservation and restoration ecology, taxonomy, genetics, and physiology.

Increasingly, graduate student projects encompass two or more of these categories. Master's students may complete a non-thesis program in conservation or restoration ecology designed to prepare them for careers in environmental consulting, natural resource agencies, and nongovernmental organizations.

Students interested in fields bordering botany will find rich opportunities for course work, collaborative research, and seminars in many other departments and schools such as Agronomy, Bacteriology, Biochemistry, Chemistry, Engineering, Entomology, Forest and Wildlife Ecology,

Genetics, Geography, Geoscience, Horticulture, Physics, Plant Breeding/Plant Genetics, Plant Pathology, Soil Science, Zoology, and the Nelson Institute for Environmental Studies. Interdisciplinary work is encouraged.

Graduate study in the Department of Botany requires a combination of advanced course work, participation in seminars, and original research. Course requirements follow one of five tracks: general botany; ecology; evolution; molecular, cellular, and developmental biology; or the non-thesis master's degree in conservation and restoration ecology. The department encourages students to pursue independent research soon after arriving. In consultation with the faculty advisor, each student selects a track that includes courses and research topics related to his or her interests and training in the array of techniques and approaches needed to pursue research.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits from other institutions are allowed to count toward the minimum graduate degree credit requirement and the minimum graduate coursework requirement.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the minimum graduate degree credit requirement and the minimum graduate coursework requirement.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No credits earned as a UW–Madison Special student are allowed to count toward the minimum graduate residence credit requirement, the minimum graduate degree credit requirement, or the minimum graduate coursework requirement.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Select one of five botany M.S. tracks. Each track has specific course requirements. Two semesters of botany seminars.

A minimum of 50 credits in natural sciences (undergraduate and graduate program courses combined) is required. A minimum of 6 credits in graduate-level botany courses must be completed at UW–Madison. Seminars and research credits do not count toward the 6 credits in botany. Courses may be required to address deficiencies in the following: GENETICS 466 Principles of Genetics or equivalent; CHEM 103 General Chemistry I and CHEM 104 General Chemistry II or equivalent; CHEM 341 Elementary Organic Chemistry or equivalent; a physics course including electricity and light; one semester of statistics; one semester of calculus. Contact the department for more information.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

Students must earn a B or above in all track coursework.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

A major professor must be chosen as soon as possible after beginning graduate study and in all cases by the end of the first year. A vice major professor is recommended.

Students meet with an advisory committee before their first semester and with their M.S. committee by the end of their first year to plan their coursework.

Students meet with their advisor on a regular basis to assess progress.

### ASSESSMENTS AND EXAMINATIONS

A written thesis or research report based on work conducted in a formal research course and a final oral exam are required of all students who expect to continue for the Ph.D. degree. All master's theses must be deposited at Memorial Library.

Students who wish to terminate their graduate studies at the master's level may submit a literature review instead of a thesis.

### TIME CONSTRAINTS

The master's degree should be completed within two and one-half years of study.

### LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The Department of Botany will consider applicants for graduate degrees who surpass the minimum admissions requirements of the Graduate School. Candidates for fall admission should submit their full applications to the department by December 1 to be considered for financial support. Applications may be reviewed until April 15. All applicants are required to take the general Graduate Record Exam (GRE). The GRE subject test in Biology or in Cell and Molecular Biology is not required but, if available, will be considered. Admission is based on the applicant's statement of purpose, undergraduate record, GRE scores, letters of recommendation, experience in research, and the interests they share with one or more potential faculty advisors.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Acquire and demonstrate fundamental understanding of the basic properties of plant life from the subcellular to the ecosystem level of organization.
- Use critical elements of the methodological or theoretical framework in a specialized botanical subdiscipline to develop hypotheses, acquire scientific information, and interpret results in the context of the historical scientific literature.
- Develop the skills of communicating scientific information, especially in written form.
- Engage in the critical evaluation of botanical scientific data and its interpretation.

### PROFESSIONAL CONDUCT

- Recognize and apply ethical conduct in the collection, analysis, and presentation of scientific data.
- Develop the skills essential to critical debate, discussion, and exchange of scientific information among peers and audiences of diverse intellectual and personal backgrounds.

## PEOPLE

**Faculty:** Professors Baum (chair), Cameron, Fernandez, Gilroy, Givnish, Graham, Larget, Otegui, Spalding, Sytsma, Waller, J. Zedler; Associate Professors Ane, Emshwiller, Hotchkiss, Pringle; Assistant Professors Keefover-Ring, Maeda, McCulloh; Affiliate and Adjunct Faculty: Amasino, Brunet, Spooner, Wiedenhoft, P. Zedler

## BOTANY, PH.D.

The Department of Botany consists of 22 faculty members with about 40 graduate students pursuing M.S. and Ph.D. degrees. The American Council on Education Rating of Graduate Program Quality ranks the department among the top five departments of botany in the country.

Graduate students work with faculty and staff on a range of projects in plant biology at all levels of organization, from molecules, through cells and organs, to populations, communities, and lineages of organisms. Major research areas include molecular, cellular, and developmental biology; structural plant biology; ecology; evolution; and systematics.

We also provide advanced instruction and opportunities for research in phycology, bryology, mycology, ethnobotany, paleoecology, conservation and restoration ecology, taxonomy, genetics, and physiology.

Increasingly, graduate student projects encompass two or more of these categories. Master's students may complete a non-thesis program in conservation or restoration ecology designed to prepare them for careers in environmental consulting, natural resource agencies, and nongovernmental organizations.

Students interested in fields bordering botany will find rich opportunities for course work, collaborative research, and seminars in many other departments and schools such as Agronomy, Bacteriology, Biochemistry, Chemistry, Engineering, Entomology, Forest and Wildlife Ecology, Genetics, Geography, Geoscience, Horticulture, Physics, Plant Breeding/Plant Genetics, Plant Pathology, Soil Science, Zoology, and the Nelson Institute for Environmental Studies. Interdisciplinary work is encouraged.

Graduate study in the Department of Botany requires a combination of advanced course work, participation in seminars, and original research. Course requirements follow one of five tracks: general botany; ecology; evolution; molecular, cellular, and developmental biology; or the non-thesis master's degree in conservation and restoration ecology. The department encourages students to pursue independent research soon after arriving. In consultation with the faculty advisor, each student selects a track that includes courses and research topics related to his or her interests and training in the array of techniques and approaches needed to pursue research.

## FUNDING

Prospective students should see the program website (<http://www.botany.wisc.edu/financial-support.htm>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits from other institutions are allowed to count toward the minimum graduate degree credit requirement and the minimum graduate coursework requirement.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the minimum graduate degree credit requirement and the minimum graduate coursework requirement.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

No credits earned as a UW-Madison Special student are allowed to count toward the minimum graduate residence credit requirement, the minimum graduate degree credit requirement, or the minimum graduate coursework requirement.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Select one of four botany Ph.D. tracks. Each track has specific course requirements. At least two semesters of seminars: one within the major area of study and one outside the major area of study.

A minimum of 50 credits in natural sciences (undergraduate and graduate program courses combined) is required. A minimum of 6 credits in graduate-level botany courses must be completed at UW-Madison. Seminars and research credits do not count toward the 6 credits in botany. Courses may be required to address deficiencies in the following: GENETICS 466 Principles of Genetics or equivalent; CHEM 103 General Chemistry I and CHEM 104 General Chemistry II or equivalent; CHEM 341 Elementary Organic Chemistry or equivalent; a physics course including electricity and light; one semester of statistics; one semester of calculus. Contact the department for more information.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

Option A: 9 credits from one department. Minor department signs the minor agreement.

Option B: 9 credits distributed between two or more departments. Botany chair signs the minor agreement.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all track coursework and maintain a 3.00 GPA in all minor coursework.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

A major professor must be chosen as soon as possible after beginning graduate study and in all cases by the end of the first year. A vice major professor is recommended.

Students meet with an advisory committee before their first semester and with their thesis committee by the end of their first year to plan their coursework.

Students are required to conduct a yearly progress report meeting with their thesis committee after passing the preliminary examination.

## ASSESSMENTS AND EXAMINATIONS

The preliminary examination should be taken by the end of the fourth semester in residence and must be taken by the end of the fifth semester. The preliminary exam includes a written research proposal, an oral presentation of the proposal to committee members, and an oral exam.

At least one semester of at least a 33% TA appointment is required.

During the final semester, candidates must present a department seminar on their dissertation research and complete a final oral exam. A written dissertation based on work conducted in a formal research course is required. All Ph.D. dissertations must be deposited at the Graduate School.

## TIME CONSTRAINTS

The doctoral degree is typically completed in five to six years.

## LANGUAGE REQUIREMENTS

Language requirements are determined on an individual basis with the major professor and will depend on the area concentration within the department.

## ADMISSIONS

The Department of Botany will consider applicants for graduate degrees who surpass the minimum admissions requirements of the Graduate School. Candidates for fall admission should submit their full applications to the department by December 1 to be considered for financial support. Applications may be reviewed until April 15. All applicants are required to take the general Graduate Record Exam (GRE).

The GRE subject test in Biology or in Cell and Molecular Biology is not required but, if available, will be considered. Admission is based on the applicant's statement of purpose, undergraduate record, GRE scores, letters of recommendation, experience in research, and the interests they share with one or more potential faculty advisors.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate a fundamental breadth of understanding of the basic properties of plant life from the subcellular to the ecosystem level of organization, and an ability to integrate acquired botanical expertise with knowledge of related disciplines including, but not limited to, mathematics, physical sciences, and other life sciences.
- Apply all elements of the methodological or theoretical framework within a specialized botanical subdiscipline to skillfully develop and execute original research, thereby demonstrating intellectual and technical competency appropriate to that subdiscipline.
- Achieve a professional level of proficiency communicating scientific research proposals and/or results in written format.
- Develop skills in oral presentation of scientific research data to peers and general audiences.
- Evaluate, critique, and apply critical thinking skills to the generation of hypotheses, analysis of data, and interpretation of scientific results in botany and related disciplines.

### PROFESSIONAL CONDUCT

- Value and promote professional ethics in the collection, analysis, storage, and presentation of scientific data.
- Engage in critical debate, discussion, and exchange of scientific information among peers and audiences of diverse intellectual and personal backgrounds.
- Appreciate the importance of professional service.

## PEOPLE

**Faculty:** Professors Baum (chair), Cameron, Fernandez, Gilroy, Givnish, Graham, Larget, Otegui, Spalding, Sytsma, Waller, J. Zedler; Associate Professors Ane, Emshwiller, Hotchkiss, Pringle; Assistant Professors Keefover-Ring, Maeda, McCulloh; Affiliate and Adjunct Faculty: Amasino, Brunet, Spooner, Wiedenhoft, P. Zedler

## BUSINESS—SCHOOL-WIDE

**Administrative Unit:** School of Business

**College/School:** School of Business

**Admitting Plans:** M.S., MBA, Ph.D.

**Degrees Offered:** M.S. in Business: General Management; M.S. in Business: Supply Chain Management; MBA in Business: General Management; MBA in Business: Supply Chain Management; Ph.D. in Business

**Minors and Certificates:** Doctoral Minor in Actuarial Science; Doctoral Minor in Business; Doctoral Minor in Business, Environment, and Social Responsibility; Graduate/Professional Certificate in Business, Environment, and Social Responsibility

### PH.D. IN BUSINESS

The School of Business Ph.D. program has a rich tradition of training scholars who can both enhance the intellectual understanding of business theory and practice and effectively transmit this knowledge to other scholars, business professionals and students.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

### MBA IN BUSINESS: GENERAL MANAGEMENT

The MBA is a professional degree for the student preparing for a career in the business world. The cross-functional/interdisciplinary program exposes the student to each of the functional areas of business combined with a specialization in a specific area of business. Areas of specialization include corporate finance and investment banking, applied security analysis, arts administration, brand and product management, general management, marketing research, operations and technology management, real estate and urban land economics, risk management and insurance, strategic human resource management, and supply chain management.

### MBA BUSINESS: SUPPLY CHAIN MANAGEMENT

The Wisconsin MBA in supply chain management, supported by the Grainger Center for Supply Chain Management, provides students with a personalized, industry-focused program which partners with companies known for supply chain excellence. The program provides students with an exceptional interdisciplinary education that builds on fundamental knowledge and incorporates the latest in supply chain thinking. The strategic, cross-functional curriculum takes an integrated business process view of supply chains, including marketing, sourcing, logistics, operations, and customer service. Students connect with and learn from real-world supply chain leaders and are part of a strong, close-knit community.

### M.S. DEGREE

The M.S. degree is currently designed for students who wish to pursue very specialized studies within one of two specific fields: global real estate, and finance.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Business, Doctoral Minor (p. 137)
- Business, Environment, and Social Responsibility, Graduate/Professional Certificate (p. 137)
- Business, Ph.D. (p. 139)
- Business: Actuarial Science, Doctoral Minor (p. 141)
- Business: General Management, M.S. (p. 141)
- Business: General Management, MBA (p. 143)
- Business: Supply Chain Management, M.S. (p. 145)
- Business: Supply Chain Management, MBA (p. 146)

## PEOPLE

**Faculty:** Dean François Ortalo-Magné

*Accounting and Information Systems*—Professors Warfield (chair), Covaleski, Johnstone, Matsumura, Mayhew, Nair, Wild; Associate Professor Laplante; Assistant Professors Allee, Barr-Pulliam, Gaertner, Griffith, Lynch, Steele, Thomas

*Actuarial Science, Risk Management and Insurance*—Professors Schmit (chair), Frees, Rosenberg; Associate Professor Leverty; Assistant Professors Mukherjee, Shi, Sydnor

*Finance, Investment and Banking*—Professors Ready (chair), Brown, Corbae, Johannes, Krainer, Mello, Wright; Associate Professors Eraker, Fedenia, Odders-White; Assistant Professors Chang, Gofman, Levine, Robatto, Wu

*Management and Human Resources*—Professors Trevor (chair), Aldag, Coff, Dunham, Gerhart; Associate Professors Eckhardt, Ganco, Posen, Stajkovic, Terlaak, Triana; Assistant Professors Navis, Sarada, Shin

*Marketing*—Professors Thompson (chair), Arora, Heide, Moreau, O'Guinn; Associate Professors Epp, Hoban, Lim, Liu, Peck, Tanner; Assistant Professors Chung, Liu, Mallucci, Polman, Weiss

*Operations and Technology Management*—Professors Morris (chair), De Croix, Hausch, Wemmerlov; Associate Professors Finster, Kim, Lazimy, Siemsen; Assistant Professors Bavafa, Tong

*Real Estate and Urban Land Economics*—Professors Yavas (chair), Malpezzi, Riddiough; Associate Professors Ghent, Quintin; Assistant Professors Diop, Luque



# BUSINESS, DOCTORAL MINOR

## REQUIREMENTS

### DOCTORAL MINOR GUIDELINES FOR NONBUSINESS DOCTORAL STUDENTS (10–12 CREDITS REQUIRED)

#### REQUIREMENTS—MUST COMPLY WITH GRADUATE SCHOOL POLICY FOR OPTION A MINORS ([HTTPS:// GRAD.WISC.EDU/ACADPOLICY/#MINORS](https://grad.wisc.edu/acadpolicy/#minors))

**Option A minor in business:** Because the School of Business (WSB) is considered a department by the Graduate School of the University of Wisconsin–Madison, WSB sub-departmental minors are not formally recognized. All Option A minors earned in the WSB are recorded as “business.” However, two types of Option A business minors are offered.

(1) Minors may be done within **one** WSB department (*only in these major areas*: Accounting, Finance, Management and Human Resources, Marketing, Operations and Information Management, Real Estate and Urban Land Economics, and Risk and Insurance). The management department also offers a minor in entrepreneurship. Official records will still reflect only the term “business” for the reason stated above. All courses/credits must be graded (A–F).

For this type of minor, where all coursework is taken in one WSB department, students should meet with the designated departmental representative, who will approve the necessary coursework to be taken within that department (or an additional related department, if appropriate). A list of faculty members is available on the WSB Ph.D. website ([https://wsb.wisc.edu/programs-degrees/doctoral-phd?\\_ga=1.211842580.1277511369.1427748585](https://wsb.wisc.edu/programs-degrees/doctoral-phd?_ga=1.211842580.1277511369.1427748585)) or through the Ph.D. Programs Office in 3115 Grainger Hall. Students must have with them a copy of the Minor Agreement Form (<https://bus.wisc.edu/phd/program-overview/areas-requirements/minor-for-non-business-students>), available on the School of Business website. The appropriate departmental representative will sign this agreement form to indicate approval of the course(s) shown for that field of study. **Coursework should be taken only after receiving written approval from the designated faculty member for the department.** Students must file a copy of this agreement form with the Ph.D. Programs Office in 3115 Grainger. It is also strongly recommended that they have a copy of this agreement placed in their permanent file in the home (major) department.

(2) A *general business minor* may also be pursued under Option A. This type of minor is made up of coursework from a number of departments (major fields) within the WSB. (*Reminder*: The WSB is considered to be only one department by the Graduate School).

For this type of minor, the students are advised to meet with the major advisor to determine the business subjects considered most relevant to their program and/or research. After identifying those subject areas (selected from those WSB departments that offer a Ph.D. major), students should consult with the designated faculty representative in *each* of the subject areas where coursework is being considered. A list of faculty members is available on the WSB Ph.D. website ([https://wsb.wisc.edu/programs-degrees/doctoral-phd?\\_ga=1.211842580.1277511369.1427748585](https://wsb.wisc.edu/programs-degrees/doctoral-phd?_ga=1.211842580.1277511369.1427748585)) or through the Ph.D. Programs Office in 3115 Grainger Hall. Students must have with them a copy of the Minor Agreement Form (<https://bus.wisc.edu/phd/program-overview/areas-requirements/minor-for-non-business-students>), also available online. Each appropriate WSB departmental representative will review the proposed course(s) in their respective department and will sign their approval or suggest appropriate alternatives. Students should then submit the completed Minor Agreement Form to the Ph.D. Programs Office in 3115 Grainger Hall after approval has been obtained for all of the proposed coursework from the respective faculty members. The proposal will then be forwarded to the WSB Ph.D. Programs Committee for final approval. **Coursework should be taken only after receiving written approval from the Ph.D. Programs Committee of the WSB.** A copy of the approved agreement form will be kept in the Ph.D. Programs Office. It is also strongly recommended that students have a copy of this agreement placed in their permanent file in the home (major) department.

**Option B minor:** There is no Option B minor available in business, because Option B minors require coursework from two or more departments. The Graduate School considers the WSB to be **one** department. All Option B minors are to be approved by the student’s doctoral advisor in the home (major) department. Option B minors for nonbusiness Ph.D. students do not require any approval from the WSB, even if coursework in business is included. Requirements are described in the Guide or on the Graduate School website (<https://grad.wisc.edu/prospective/academicprograms>).

## BUSINESS, ENVIRONMENT, AND SOCIAL RESPONSIBILITY, GRADUATE/PROFESSIONAL CERTIFICATE

Business: environment and social responsibility (BESR) is a 12-credit graduate/professional certificate that offers a suite of courses addressing the interrelations between business and its natural and social environment. Its goal is to provide graduate students the fundamental knowledge and skills to sustainably manage enterprises that integrate economic, environmental, and social dimensions into their decision-making.

Students in the program will acquire *knowledge* of (1) the causes of environmental and social challenges as relating to business, and respective policy and business responses; (2) frameworks and measurement systems for incorporating sustainability concerns into business analysis and decision-making; and (3) domains in which business activities and sustainability concerns intersect, and the management of these intersections. They further will acquire *skills* to (1) analyze the causes of and responses to environmental and social problems, as well as develop and implement solutions to these problems as managers and policymakers; (2) identify and apply frameworks for effectively incorporating sustainability considerations into the analysis and decision-making of managers and policymakers; and (3) analyze where and how environmental and social issues intersect with business, as well as develop and implement solutions for managing these intersections.

As determined by each student’s individual course path, students will acquire deeper knowledge and skills in select domains such as systems designs, risk management, green real estate, and more. Students are also encouraged to participate in a variety of events and activities that provide a forum to exchange ideas and connect the business community with students and faculty interested in sustainability.

## REQUIREMENTS

The required foundation course, advanced business sustainability coursework, and electives from across the campus need to tally a **minimum of 12 credits**. The slate of coursework options available for fulfilling the certificate program is shown in the table below. Students are strongly encouraged to participate in related non-credit sustainability experiences via competitions, conferences, and speaker events.

The foundation course has no prerequisites and is open to all graduate students on campus. Students will: 1) take one required foundation course (M H R/ENVIR ST 710 Challenges & Solutions in Business Sustainability 2) choose at least three (3) additional credits from a list of School of Business advanced business sustainability coursework, and 3) select up to six (6) credits of additional courses from other elective coursework.

Code	Title	Credits
<b>Required Foundational Coursework</b>		
M H R/ ENVIR ST 710	Challenges & Solutions in Business Sustainability (spring) (Formerly listed as M H R 765: Sustainable Enterprise Management)	3
<b>School of Business - Advanced Business Sustainability Classes</b> <small>choose at least 3 credits from list</small>		
OTM 770	Sustainable Approaches to System Improvement	4
REAL EST 651	Green - Sustainable Development	3
R M I 650	Sustainability, Environmental and Social Risk Management	3
<b>Other Elective Coursework</b> <small>Up to 6 credits from other elective coursework can be counted towards the required 12 certificate credits</small>		
<i>School of Business</i>		
ACCT I S 700	Financial Accounting	3
ACCT I S 710	Managerial Accounting	3
ACCT I S 771	Seminar in Strategic Cost Management and Performance Measurement	3
FINANCE 700	Introduction to Financial Management	3
M H R 728	Bargaining, Negotiating and Dispute Settlement for Managers	3
M H R 723	Business Strategy	3
MARKETNG 700	Marketing Management	3
OTM 700	Operations Management	3
OTM 732	Economics for Managers	3
R M I 700	Principles of Risk Management	3
R M I/GEN BUS 701	Managing Legal Risks	3
ECON/A A E/ ENVIR ST/ URB R PL 671	Energy Economics	3
<i>College of Agricultural &amp; Life Sciences</i>		
A A E/ECON/ F&W ECOL 531	Natural Resource Economics	3
A A E 643	Foundations of Environmental and Natural Resource Economics	3

A A E/ECON/ ENVIR ST/ URB R PL 671	Energy Economics	3
A A E 729	The Microdynamics of Environment and Development	3
A A E 760	Frontiers in Environmental and Natural Resource Economics 1	3
A A E 762	Frontiers in Environmental and Natural Resource Economics 2	3
F&W ECOL/A A E/ ENVIR ST 652	Decision Methods for Natural Resource Managers	3-4
<i>College of Agricultural &amp; Life Sciences / College of Letters &amp; Science</i>		
URB R PL/A A E/ ECON/ENVIR ST 671	Energy Economics	3
URB R PL/ECON/ PUB AFFR 734	Regional Economic Problem Analysis	3
URB R PL 841	Urban Functions, Spatial Organization and Environmental Form	2-3
URB R PL/ ENVIR ST 843	Land Use Policy and Planning	3
URB R PL/ ENVIR ST 865	Water Resources Institutions and Policies	3
<i>Nelson Institute for Environmental Studies</i>		
ENVIR ST/ SOIL SCI 575	Assessment of Environmental Impact	3
ENVIR ST/A A E/ ECON/URB R PL 671	Energy Economics	3
ENVIR ST 707	Professional Skills for Global Systems Analysis	1
ENVIR ST 977	Sustainable Development - Integral Perspective	3
<i>College of Engineering</i>		
E P D 660	Core Competencies of Sustainability	3
E P D 661	Industrial Ecology: Sustainability Tools in Context	3
<i>Law School</i>		
LAW 845	Water Rights Law	2-3
LAW 848	Introduction to Environmental Law	3
LAW 918	Selected Problems in International Law-Seminar "International Environmental Law & Policy" or "Climate Change, Human Rights & the Environment"	2-3
LAW 988	Selected Problems in Environmental Law-Seminar "Natural Resources Law" or "Agricultural Law & the Environment"	2-3
LAW 989	Environmental Law and Practice	3
<i>La Follette School of Public Affairs</i>		
PUB AFFR/ ENVIR ST/ POLI SCI 866	Global Environmental Governance	3
PUB AFFR/ A A E/ENVIR ST/ POP HLTH 881	Benefit-Cost Analysis	3

**School of Medicine and Public Health**

POP HLTH/ ENVIR ST 560	Health Impact Assessment of Global Environmental Change	3
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**School of Education**

CURRIC 975	General Seminar	2-3
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The list of electives is dynamic and will be adjusted as new courses are being offered and others dropped. For the most up-to-date listing, check the certificate's website (<http://bus.wisc.edu/degrees-programs/certificates/graduate/sustainability>). Students may request to substitute listed electives with courses that are currently not listed. Such a request requires that the student explains how the substitute class meets the learning outcomes of the certificate and assists the student in reaching his or her individual goals for taking the certificate. The request requires approval by the certificate director in coordination with the Certificate Oversight Committee.

For courses with access restricted to School of Business students, non-business school students may select equivalent open-access lower-level courses numbered 300 and above (e.g., substitute M H R 723 Business Strategy with M H R 423 Strategic Management).

**Extracurricular Activities** (*Certificate students are encouraged, but not required, to engage in extracurricular activities that enhance the certificate's learning outcomes.*) These include:

- Speaker events such as the Business Sustainability Speaker Series and Weston Lecture Series
- Competitions such as Walmart's Sustainable Business Plan Competition and Burrill Business Plan Competition
- Conferences such as the Nelson's Institute Annual Earth Day conference and Wisconsin Sustainable Business Council Conference

**ADMISSIONS**

Before beginning the application to the graduate/professional certificate, students should gather the information listed below.

- List of previous degrees including institution, degree, major, date granted and GPA for each degree
- Scores and percentiles for all applicable graduate school admission tests
- Current GPA
- Advisor's name and email address
- Planned semester to begin the certificate or minor

**Note:** For the application to be approved, it is required that the student has consent from the faculty advisor (or, where appropriate, graduate program coordinator) to participate in the BESR minor or certificate. The student must have the advisor send an email to the certificate director at [aterlaak@bus.wisc.edu](mailto:aterlaak@bus.wisc.edu) confirming this consent.

**For more information:** Certificate advisor, [aterlaak@bus.wisc.edu](mailto:aterlaak@bus.wisc.edu); [bus.wisc.edu/degrees-programs/certificates/graduate/sustainability](http://bus.wisc.edu/degrees-programs/certificates/graduate/sustainability) (<https://bus.wisc.edu/degrees-programs/certificates/graduate/sustainability>)

**BUSINESS, PH.D.****DEGREE PROGRAM SPECIALIZATIONS**

School of Business Ph.D. students select from seven specializations available along with a variety of minors. Each specialization permits the student, with the assistance and direction of a major advisor, to tailor a program based on research interests and career goals. The average time needed to complete the degree program is 5 years.

**PH.D. DEGREE**

The Ph.D. degree provides advanced instruction that actively involves the student in research. School of Business doctoral candidates share with their professors the experience of exploring the frontiers of knowledge while acquiring the spirit as well as the methods of productive scholarship. At the time of enrollment, each student is assigned a major advisor to provide program counsel and to channel communication within and between School of Business departments. The mentoring relationship between the major professor and student is one of mutual agreement.

The School of Business offers the Ph.D. with the following specializations:

- Accounting and Information Systems
- Actuarial Science, Risk Management and Insurance
- Finance, Investment, and Banking or Joint Ph.D. in Business (Finance) and Economics
- Information Systems and Operations and Information Management
- Management and Human Resources
- Marketing
- Real Estate and Urban Land Economics

**FUNDING**

Prospective students should see the program website for funding information.

**REQUIREMENTS****MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS**

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

**DOCTORAL DEGREES**

Ph.D.

**MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT**

51 credits

**MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT**

32 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the degree coursework (26 credits out of 51 total credits) must be completed in courses numbered 700 or higher.

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between special and graduate tuition), students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

12 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission consideration requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. Work experience is not required. Applicants should have an undergraduate minimum grade point average (GPA) of 3.0 or higher on a 4.0 scale. In addition to academic credentials, test scores, personal achievements, motivation, communication skills (written and oral) and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Please note:* The Graduate Management Admission Test (GMAT) or the Graduate Record Exam (GRE), taken within five years of the starting term, is required of all applicants to the Wisconsin School of Ph.D. and M.S. programs. Also, all domestic (including Puerto Rico) and international applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL). A recommended minimum TOEFL score of 106 (New iBT) and 27 Speaking, obtained within two years of the intended starting term, is needed for admission consideration. International applicants who have completed a four-year bachelor's degree in a country where the official language is English may request a waiver of the TOEFL requirement. A master's degree from an English-speaking institution does not qualify for a waiver of the TOEFL, unless you have completed a minimum of 4 years of education (undergrad and graduate) in a country where English is the native language. The school accepts IELTS and Pearson Test of English as substitutes for TOEFL.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates challenges, frontiers and limits with respect to theory, knowledge or practice within the field of study.
- Creates research, scholarship or performance that makes a substantive contribution within the field of study.
- Develops a proficiency in statistical analysis relevant to the field of study.
- Demonstrates breadth within their learning experiences.
- Communicates complex or ambiguous ideas in a clear and understandable manner.
- Advances and articulates the value of contributions of the field of study to society.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## BUSINESS: ACTUARIAL SCIENCE, DOCTORAL MINOR

## BUSINESS: GENERAL MANAGEMENT, M.S.

The M.S. degree is currently designed for students who wish to pursue very specialized studies within one of two specific fields: global real estate and finance (with a specialization in quantitative finance). With previous undergraduate exposure to the functional areas of business, students are able to gain a more extensive focus in one of these two specific areas of business.

The University of Wisconsin–Madison School of Business seeks to equip candidates with the broad business background, major specialization, and analytical skills necessary to make sound management decisions. To gain expertise in these areas, the curriculum combines traditional lecture-style delivery with case analysis, project work, team interaction, and hands-on/practical experience in the business community.

As a result, graduates of the School of Business possess highly sought after technical/specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top 20 graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between special and graduate tuition), students are allowed to count no more than 9 credits of coursework numbered 700 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to the master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher

grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission consideration requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. Work experience is not required. Applicants should have an undergraduate minimum grade point average (GPA) of 3.0 or higher on a 4.0 scale. In addition to academic credentials, test scores, personal achievements, motivation, communication skills (written and oral) and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT) or the Graduate Record Exam (GRE), taken within five years of the starting term, is required of all applicants to the Ph.D. and M.S. Programs. Also, all domestic (including Puerto Rico) and international applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL). A recommended minimum TOEFL score of 106 (New iBT), obtained within two years of the intended starting term, is needed for admission consideration. International applicants who have completed a four-year bachelor's degree in a country where the official language is English may request a waiver of the TOEFL requirement. A master's degree from an English-speaking institution

does not qualify for a waiver of the TOEFL. The school accepts IELTS and Pearson Test of English as substitutes for TOEFL.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students demonstrate ability to diagnose and solve problems by drawing on accumulated knowledge, understanding correlation vs. causation, integrating inductive and deductive reasoning, and being aware of perceptual and conceptual biases that can affect individual and group decision-making and knowing how to correct these biases.
- Students demonstrate ability to synthesize data and inputs from multiple sources to analyze business problems.
- Students demonstrate ability to derive valid inferences from data and make recommendations based on marginal analysis of costs and benefits.
- Students communicate clearly and effectively as managers in professional settings to meet organizational goals.
- Persuasive skills in verbal and written communication.
- Utilize a variety of media and technologies.
- Manage the message and its flow through an organization.
- Students develop multi-disciplinary approaches to frame and analyze complex business problems and situations.
- Students understand perspectives on the role of business in society, e.g., shareholder value as its sole objective and corporations having a social responsibility.
- Students can explain how these views are shaped by globalization, environmental and social circumstances, technology, law, and the role of government.
- Students analyze the cultural, economic, and legal/regulatory issues that impact international business activities and relationships.

### PROFESSIONAL CONDUCT

- Students understand that a leader motivates and inspires people while a manager manages processes, that leader and manager roles are distinct and complementary, and that both roles are necessary for success in complex, multifaceted organizations.
- Student can explain and contrast the different systems of behaviors for leaders and managers within the organization.
- Students frame, reflect on, and respond to the ethical dimensions of business decisions.

### ADDITIONAL LEARNING GOALS

- Students demonstrate the skills and know processes to maximize team performance to successfully meet goals, both as an effective team member and leader.
- Students understand the advantages of a diverse and inclusive workforce, and demonstrate the cultural competencies necessary to manage such a workforce.
- Students analyze the impact of laws and regulations on their decisions.

## BUSINESS: GENERAL MANAGEMENT, MBA

The MBA is a professional degree for the student preparing for a career in the business world. The cross-functional/interdisciplinary program exposes the student to each of the functional areas of business combined with a specialization in a specific area of business. Areas of specialization include corporate finance and investment banking, applied security analysis, arts administration, brand and product management, general management, marketing research, operations and technology management, real estate and urban land economics, risk management and insurance, strategic human resource management, and supply chain management.

The University of Wisconsin–Madison School of Business seeks to equip candidates with the broad business background, major specialization, and analytical skills necessary to make sound management decisions. To gain expertise in these areas, the curriculum combines traditional lecture-style delivery with case analysis, project work, team interaction, and hands-on/practical experience in the business community.

As a result, graduates of the School of Business possess highly sought after technical/specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top 20 graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

### EVENING MBA

The School of Business offers the Evening MBA—a part-time program that allows students to complete an MBA degree while continuing full-time employment. The evening MBA is a 32-month, lockstep, cohort program offering a major in general management. Classes meet Monday and Thursday evenings during fall, spring and summer, and alternate Fridays and Saturdays in January. There is an international trip in the second year of the program.

### EXECUTIVE MBA

The Executive MBA Program at the School of Business gives experienced, high-potential managers the opportunity to earn an advanced degree over 21 months without career interruption.

Offered in lock step with a single cohort, the Executive MBA Program meets every other Friday and Saturday. The curriculum is specifically designed to build on the unique knowledge and experience executives bring to the classroom.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

MBA, with available named options Evening MBA, and Executive MBA

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits of prior coursework are allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No credits of prior coursework are allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits<sup>1</sup>

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

<sup>1</sup> Full-time MBA students may be allowed to enroll in up to 18 credits per term in the 2016–2017 academic year. Contact the Wisconsin School of Business for more information.

## ADMISSIONS

Admission consideration for the MBA Program requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. The School of Business seeks a minimum of two years of full-time work experience along with a strong undergraduate performance. In addition to academic credentials, GMAT scores, and work experience, personal achievements, motivation, communication skills (written and oral), international exposure, and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT), taken within five years of the starting term, is required of all applicants to the School of Business; the Graduate Record Exam (GRE) may be an acceptable alternative on a case by case basis. All applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL), the Pearson Test of English (PTE), Intensive English as a Second Language (IELTS), or show the completion of an Interlink program. A minimum iBT TOEFL score of 100 or equivalent, obtained within two years of the intended start term, is required. International applicants who have completed a degree at an institution whose primary

language of instruction was English may request a waiver of this requirement on the application.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students demonstrate ability to diagnose and solve problems by drawing on accumulated knowledge, understanding correlation vs. causation, integrating inductive and deductive reasoning, and being aware of perceptual and conceptual biases that can affect individual and group decision-making and knowing how to correct these biases.
- Students demonstrate ability to synthesize data and inputs from multiple sources to analyze business problems.
- Students demonstrate ability to derive valid inferences from data and make recommendations based on marginal analysis of costs and benefits.
- Students communicate clearly and effectively as managers in professional settings to meet organizational goals.
- Persuasive skills in verbal and written communication.
- Utilize a variety of media and technologies.
- Manage the message and its flow through an organization.
- Students develop multi-disciplinary approaches to frame and analyze complex business problems and situations.
- Students understand perspectives on the role of business in society, e.g., shareholder value as its sole objective and corporations having a social responsibility.
- Students can explain how these views are shaped by globalization, environmental and social circumstances, technology, law, and the role of government.
- Students analyze the cultural, economic, and legal/regulatory issues that impact international business activities and relationships.

### PROFESSIONAL CONDUCT

- Students understand that a leader motivates and inspires people while a manager manages processes, that leader and manager roles are distinct and complementary, and that both roles are necessary for success in complex, multifaceted organizations.
- Student can explain and contrast the different systems of behaviors for leaders and managers within the organization.
- Students frame, reflect on, and respond to the ethical dimensions of business decisions.

### ADDITIONAL LEARNING GOALS

- Students demonstrate the skills and know processes to maximize team performance to successfully meet goals, both as an effective team member and leader.
- Students understand the advantages of a diverse and inclusive workforce, and demonstrate the cultural competencies necessary to manage such a workforce.
- Students analyze the impact of laws and regulations on their decisions.



## BUSINESS: SUPPLY CHAIN MANAGEMENT, M.S.

The M.S. degree in the School of Business is currently designed for students who wish to pursue very specialized studies within one of two specific fields: global real estate (in the business: real estate and urban land economics M.S.) and finance (within the business: finance, investment and banking M.S.). With previous undergraduate exposure to the functional areas of business, students are able to gain a more extensive focus in one of these two specific areas of business.

Graduates of the School of Business possess highly sought-after technical/specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW-Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.S.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between special and graduate tuition), students are allowed to count no more than 9 credits of coursework numbered 700 or above taken as a UW-Madison University Special student. Coursework earned five or more years prior to the master's degree is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00

#### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

#### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

#### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

#### ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

#### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission consideration requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. Work experience is not required. Applicants should have an undergraduate minimum grade point average (GPA) of 3.0 or higher on a 4.0 scale. In addition to academic credentials, test scores, personal achievements, motivation, communication skills (written and oral) and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT) or the Graduate Record Exam (GRE), taken within five years of the starting term, is required of all applicants to the Ph.D. and M.S. Programs. Also, all domestic (including Puerto Rico) and international applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL). A recommended minimum TOEFL score of 106 (New iBT), obtained within two years of the intended starting term, is needed for admission consideration. International applicants who have completed a four-year bachelor's degree in a country where the official language is English may request a waiver of the TOEFL requirement. A master's degree from an English-speaking institution does not qualify for a waiver of the TOEFL. The school accepts IELTS and Pearson Test of English as substitutes for TOEFL.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will be able to develop appropriate supply chain strategies, and will be able to assess the financial, marketing and operational implications of such strategies.
- Graduates will be able to apply foundational knowledge in operations, marketing and other core business disciplines to support decision making within and across the fundamental dimensions of supply chain management planning, sourcing, making and delivering products.
- By engaging in a wide range of applied activities, students will develop the ability to make supply chain decisions in real-world settings.
- Students will be able to identify relevant sources of data, know how to access that data, and will be able to analyze it using both statistical and optimization techniques to support supply chain decision making.
- Students will be able to identify and assess the opportunities and risks associated with global sources of supply and global markets for goods.

### PROFESSIONAL CONDUCT

- Students will develop a professional network of supply chain professionals in a wide variety of industries through engagement with the Executive Advisory Board, program alumni and affiliated companies and professional organizations.

- Students will be able to communicate their ideas and recommendations to individuals in all functional areas within an organization.

## BUSINESS: SUPPLY CHAIN MANAGEMENT, MBA

The Wisconsin MBA in supply chain management, supported by the Grainger Center for Supply Chain Management, provides students with a personalized, industry-focused program which partners with companies known for supply chain excellence. The program provides students with an exceptional interdisciplinary education that builds on fundamental knowledge and incorporates the latest in supply chain thinking. The strategic, cross-functional curriculum takes an integrated business process view of supply chains, including marketing, sourcing, logistics, operations, and customer service. Students connect with and learn from real-world supply chain leaders and are part of a strong, close-knit community. See the program website (<http://bus.wisc.edu/centers/granger-center-for-supply-chain-management>) for more information.

Graduates of the School of Business possess highly sought-after technical/specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

MBA

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits of prior coursework are allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No credits of prior coursework are allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits<sup>1</sup>

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

- 1 Full-time MBA students may be allowed to enroll in up to 18 credits per term in the 2016–2017 academic year. Contact the Wisconsin School of Business for more information.

## ADMISSIONS

Admission consideration for the MBA program requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. The School of Business seeks a minimum of two years of full-time work experience along with a strong undergraduate performance. In addition to academic credentials, GMAT scores and work experience, personal achievements, motivation, communication skills (written and oral), international exposure and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT), taken within five years of the starting term, is required of all applicants to the School of Business; the Graduate Record Exam (GRE) may be an acceptable alternative on a case by case basis. All applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL), the Pearson Test of English (PTE), Intensive English as a Second Language (IELTS), or show the completion of an Interlink program. A minimum iBT TOEFL score of 100 or equivalent, obtained within two years of the intended start term, is required. International applicants who have completed a degree at an institution whose primary language of instruction was English may request a waiver of this requirement on the application.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Students will be able to develop appropriate supply chain strategies, and will be able to assess the financial, marketing and operational implications of such strategies.
- Graduates will be able to apply foundational knowledge in operations, marketing and other core business disciplines to support decision making within and across the fundamental dimensions of supply chain management planning, sourcing, making and delivering products.
- By engaging in a wide range of applied activities, students will develop the ability to make supply chain decisions in real-world settings.
- Students will be able to identify relevant sources of data, know how to access that data, and will be able to analyze it using both statistical and optimization techniques to support supply chain decision making.

- Students will be able to identify and assess the opportunities and risks associated with global sources of supply and global markets for goods.

## **PROFESSIONAL CONDUCT**

- Students will develop a professional network of supply chain professionals in a wide variety of industries through engagement with the Executive Advisory Board, program alumni and affiliated companies and professional organizations.
- Students will be able to communicate their ideas and recommendations to individuals in all functional areas within an organization.

# CELL AND REGENERATIVE BIOLOGY

**Administrative Unit:** Cell and Regenerative Biology  
**College/School:** School of Medicine and Public Health  
**Admitting Plans:** M.S.  
**Degrees Offered:** M.S.

The master of science (M.S.) in biotechnology provides students with an overarching view of modern biotechnology operations, addressing fundamental scientific and legal matters, innovative technologies and complex business issues. Students thrive in an environment rich in academic and industrial collaboration, leaving the program prepared to assume leadership roles in the biotechnology industry. Practical and results oriented, this two-year program provides the foundation necessary for succeeding and advancing in one of the fastest growing and most complex industries in the world. Top-rated UW–Madison faculty and talented business partners in Wisconsin combine their expertise to provide hands-on, problem-solving experiences while offering flexible schedules for students, including convenient weekend and evening courses.

## COURSES

See program website (<http://www.ms-biotech.wisc.edu/curriculum.cfm>) for required sequence of courses.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Biotechnology, M.S. (p. 149)

## BIOTECHNOLOGY, M.S.

The master of science (M.S.) in biotechnology provides students with an overarching view of modern biotechnology operations, addressing fundamental scientific and legal matters, innovative technologies and complex business issues. Students thrive in an environment rich in academic and industrial collaboration, leaving the program prepared to assume leadership roles in the biotechnology industry. Practical and results oriented, this two-year program provides the foundation necessary for succeeding and advancing in one of the fastest growing and most complex industries in the world. Top-rated UW–Madison faculty and talented business partners in Wisconsin combine their expertise to provide hands-on, problem-solving experiences while offering flexible schedules for students, including convenient weekend and evening courses.

## COURSES

See program website (<http://www.ms-biotech.wisc.edu/curriculum.cfm>) for required sequence of courses.

## FUNDING

Direct financial support from the M.S. in Biotechnology Program is not available. However, students may contact the Office of Student Financial

Aid (<http://www.finaid.wisc.edu>) to discuss federal loan programs and other lending opportunities.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attributed are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No prior coursework from other institutions may be applied toward program requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No prior coursework from UW–Madison undergraduate career may be applied toward program requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No prior coursework taken as a UW–Madison University Special student may be applied toward program requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher

grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

A significant strength of the program is the diversity and experience of the student cohort entering each year.

- Professional work experience is required, which is the primary criteria used in the admission process.
- Applicants should have a bachelor's degree, minimum 3.0 GPA (on a 4.0 scale).
- Applicants must have a minimum of two semesters of biology or other related life-science courses.

The primary criteria used in the admission process are:

- Work experience
- Grade point average
- Letters of recommendation
- Personal statement of academic career goals

A completed application file will consist of:

- Submitted online application (<http://grad.wisc.edu/apply>) with paid application fee

- Statement of purpose containing reasons and goals for graduate study
- Professional resume
- 3 letters of recommendation (done electronically on the Graduate School online application)
- Official transcripts from each previous undergraduate and postgraduate institution
- List of awards, honors, and/or publications

The Graduate Record Exam (GRE) is not required for admission.

When all application materials have been received, an in-person or phone interview will be scheduled. Students admitted to the program are expected to own a laptop with wireless connectivity for use throughout their program experience.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Apply core scientific and business principles to distinguish the difference between scientific and commercial success, and gain insight in to the challenge of balancing product usefulness with positive return on investment.
- Understand how regulation is developed and how it interacts with business and finance to influence the formation and growth of technology companies.
- Understand and apply modern biotechnology methods and practice, as well as effective written and oral scientific communication, through hands-on participation in the laboratory.
- Apply knowledge of seven functional specialties (regulatory affairs, quality assurance, biomanufacturing, quality control, non-clinical development, clinical development and project management) to the coordinated process of product development.
- Understand the processes, technologies, scientific principles and major challenges of the early drug discovery process as it continues to evolve.
- Evaluate the potential of a product or technology based on the organizational resources required for full commercialization.
- Understand firm-level strategic development, and apply strategic business principles in day-to-day operations.
- Demonstrate an ability to identify a global problem, and how biotechnology may offer a novel solution(s).
- Integrate the technical, sociological and leadership skills that are necessary to design, use and defend a global project management plan.

### PROFESSIONAL CONDUCT

- Integrate topics in science, policy, law and business in order to lead the development and commercialization of new and promising technologies.
- Recognize and apply principles of ethical and professional conduct develop long-term networks and relationships with industry partners.
- Understand the ethical and safety issues that help shape public policies on biotechnology and its applications.

## CENTER FOR HUMANITIES

**Administrative Unit:** Center for the Humanities

**College/School:** College of Letters & Science

**Minors and Certificates:** Graduate/Professional Certificate

The graduate/professional certificate in the public humanities prepares graduate students to pursue careers outside of academia and trains students who wish to remain within academia to articulate new horizons for their research.

The graduate/professional certificate in the public humanities builds on the Center for the Humanities' pioneering work in the public humanities and its related programs for graduate students, including the Public Humanities Exchange (HEX) (<http://humanities.wisc.edu/public-projects/public-humanities-exchange/about-public-humanities-exchange>) and the Public Humanities Fellowships (<http://humanities.wisc.edu/fellows>). It provides enrolled students with training and experience in the focuses on essential knowledge and skills required for professional paths that may not include traditional university teaching positions, whether in other sectors of higher education, policymaking and analysis, cultural organizations, new media, government, or research. Through coursework and hands-on project development, the program equips students with theoretical, historical, and practical knowledge that will help them to develop alternative applications for their scholarly research and engage their scholarly methods for use in broader social and professional contexts.

Graduate students pursuing degrees in any program at UW–Madison are welcome to seek admission into the graduate/professional certificate in the public humanities. Students must complete an admissions form, and may submit it at any time for review and acceptance by the certificate advisor. The application requires approval by the director of graduate studies or graduate chair in the student's home department.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Public Humanities, Graduate/Professional Certificate (p. 151)

## PUBLIC HUMANITIES, GRADUATE/ PROFESSIONAL CERTIFICATE

The graduate/professional certificate in the public humanities prepares graduate students to pursue careers outside of academia and trains students who wish to remain within academia to articulate new horizons for their research.

The graduate/professional certificate in the public humanities builds on the Center for the Humanities' pioneering work in the public humanities and its related programs for graduate students, including the Public Humanities Exchange (HEX) (<http://humanities.wisc.edu/public-projects/public-humanities-exchange/about-public-humanities-exchange>) and the Public Humanities Fellowships (<http://humanities.wisc.edu/fellows>). It provides enrolled students with training and experience in the focuses on essential knowledge and skills required for professional paths that may not include traditional university teaching positions, whether in

other sectors of higher education, policymaking and analysis, cultural organizations, new media, government, or research. Through coursework and hands-on project development, the program equips students with theoretical, historical, and practical knowledge that will help them to develop alternative applications for their scholarly research and engage their scholarly methods for use in broader social and professional contexts.

Graduate students pursuing degrees in any program at UW–Madison are welcome to seek admission into the graduate/professional certificate in the public humanities. Students must complete an admissions form, and may submit it at any time for review and acceptance by the certificate advisor. The application requires approval by the director of graduate studies or graduate chair in the student's home department.

## CHEMICAL AND BIOLOGICAL ENGINEERING

**Administrative Unit:** Chemical and Biological Engineering

**College/School:** College of Engineering

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

Graduate study in the department may be directed toward the master of science or the doctor of philosophy in chemical engineering. The graduate courses are planned to train outstanding students for advanced work in research and development.

The Department of Chemical and Biological Engineering has a tradition of excellence dating back to 1905. For a century, the program has consistently ranked as one of the best in the world. The department offers research opportunities in both traditional and emerging areas of research in chemical and biological engineering. These areas include energy-related science and technology, soft and hard materials science and engineering, systems engineering and optimization, catalysis, process control and design, nanotechnology, biotechnology, biomedical engineering, complex fluids, colloid and interfacial phenomena, atomic, molecular, and multiscale modeling, polymers (synthesis and processing), micro- and nano-electronics, environmental engineering and sustainability, reactor design, and atomic-scale design of surface reactivity. These areas of research are advanced by leveraging tools from the fields of applied mathematics, statistical mechanics, kinetics and catalysis, thermodynamics, and transport phenomena.

Research in the department is highly interdisciplinary, capitalizing on programs of national prominence such as the NSF Materials Research Science and Engineering Center (MRSEC), the nation's largest NIH-funded biotechnology training program, and the Computation and Informatics in Biology and Medicine training program. Interdisciplinary research opportunities are also available through the Materials Science Program, the Center for Nanotechnology, and the Rheology Research Center. Researchers in the department have access to state-of-the-art facilities for research, including facilities for nanofabrication and the life sciences.

Graduate students in the department are encouraged to participate in international research experiences, industry internships, and entrepreneurial activities.

For interests and activities of faculty members, along with a list of selected publications for each, see the department's faculty directory (<http://directory.engr.wisc.edu/che/faculty>).

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE PROFESSIONAL/CERTIFICATES

- Chemical Engineering, Doctoral Minor (p. 152)
- Chemical Engineering, M.S. (p. 152)
- Chemical Engineering, Ph.D. (p. 154)

## PEOPLE

**Faculty:** Professors Abbott, Dumesic, Graham, Huber, Klingenberg, Kuech, Lynn, Maravelias (Assistant Chair), Mavrikakis (Chair), Murphy, Palecek, Rawlings, Root, Shusta, Yin; Associate Professors Pfleger, Reed, Swaney; Assistant Professor Zavala

## CHEMICAL ENGINEERING, DOCTORAL MINOR

A Ph.D. candidate in another department who wishes to minor in chemical engineering should consult the minor professor. The minor consists of 9 credits of courses numbered 300 and above with an average grade of B or better.

## PEOPLE

**Faculty:** Professors Abbott, Dumesic, Graham, Huber, Klingenberg, Kuech, Lynn, Maravelias (Assistant Chair), Mavrikakis (Chair), Murphy, Palecek, Rawlings, Root, Shusta, Yin; Associate Professors Pfleger, Reed, Swaney; Assistant Professor Zavala

## CHEMICAL ENGINEERING, M.S.

Graduate study in the department may be directed toward the master of science or the doctor of philosophy in chemical engineering. The graduate courses are planned to train outstanding students for advanced work in research and development.

The Department of Chemical and Biological Engineering has a tradition of excellence dating back to 1905. For a century, the program has consistently ranked as one of the best in the world. The department offers research opportunities in both traditional and emerging areas of research in chemical and biological engineering. These areas include energy-related science and technology, soft and hard materials science and engineering, systems engineering and optimization, catalysis, process control and design, nanotechnology, biotechnology, biomedical engineering, complex fluids, colloid and interfacial phenomena, atomic, molecular, and multiscale modeling, polymers (synthesis and processing), micro- and nano-electronics, environmental engineering and sustainability, reactor design, and atomic-scale design of surface reactivity. These areas of research are advanced by leveraging tools from the fields of applied mathematics, statistical mechanics, kinetics and catalysis, thermodynamics, and transport phenomena.

Research in the department is highly interdisciplinary, capitalizing on programs of national prominence such as the NSF Materials Research Science and Engineering Center (MRSEC), the nation's largest NIH-funded biotechnology training program, and the Computation and Informatics in Biology and Medicine training program. Interdisciplinary research opportunities are also available through the Materials Science Program, the Center for Nanotechnology, and the Rheology Research Center. Researchers in the department have access to state-of-the-art facilities for research, including facilities for nanofabrication and the life sciences.



Graduate students in the department are encouraged to participate in international research experiences, industry internships, and entrepreneurial activities.

For interests and activities of faculty members, along with a list of selected publications for each, see the department's faculty directory (<http://directory.engr.wisc.edu/che/faculty>).

## FUNDING

Financial support for qualified graduate students is available in the form of research assistantships, teaching assistantships, and fellowships.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.Eng., M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed graduate-level coursework courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count graduate coursework from other institutions toward the Minimum Graduate Degree Credit Requirement and the Minimum Graduate coursework (50%) Requirement. No credits from other institutions can be counted toward the Minimum Graduate Residence Credit Requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

A total of 7 undergraduate credits from the UW-Madison undergraduate degree may be counted toward coursework requirements. If those credits are numbered 300 or above, they may be counted toward the Minimum Graduate Degree Credit Requirement. If those credits are numbered 700 or above, they may be counted toward the Minimum Graduate coursework (50%) Requirement. No credits can be counted toward the Minimum Graduate Residence Credit Requirement. Coursework earned

five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW-Madison Special student toward the Minimum Graduate Residence Credit Requirement, and the Minimum Graduate Degree Credit Requirement and the Minimum Graduate Coursework (50%) Requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

To qualify for M.S. degree, student must complete a minimum of 30 graduate-level credits (300 and above), divided into two groups:

1. Professional group: minimum of 12 credits of chemical engineering courses. At least 6 credits must be numbered 700–899 (excluding research).
2. Elective group: minimum of 12 credits of graduate courses. At least 6 of these credits shall be in departments other than CBE and shall be chosen for their relevance to chemical and biological engineering.

Up to 6 credits will be allowed for chemical and biological engineering courses numbered between 300 and 499 in groups I and II combined, provided equivalent courses were not previously taken by the student.

The independent study project will comprise a minimum of 3 credits of supervised CBE 790 Master's Research or Thesis and may involve a lab project, theoretical work, or a critical review of an advanced engineering topic.

An M.S. candidate must successfully complete an oral examination before a departmental examining committee.

When a candidate presents a thesis, no fewer than 5 nor more than 8 credits of research (CBE 790) may be counted toward the 30-credit-total requirement. When a thesis is not presented, a maximum of 6 credits of research may be counted toward the total.

### OVERALL GRADUATE GPA REQUIREMENT

GPA of 3.0 or better is required.

### OTHER GRADE REQUIREMENTS

Professional group: Grades of B or better are required.

Elective group: In general, grades of B or better are required for credit in this group, but grades of BC or C in non-CBE courses will be counted if balanced credit for credit by grades of A or AB in other courses from this group.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

The thesis examining committee comprises the advisor(s) plus two other CBE faculty members. The candidate may defend an M.S. thesis or an independent study project report.

## ASSESSMENTS AND EXAMINATIONS

An M.S. candidate must successfully complete an oral examination before a departmental examining committee of the advisor(s) plus two other CBE faculty members. The candidate may defend an M.S. thesis or an independent study project report.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D. (p. 154)

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

## PROFESSIONAL CONDUCT

- recognize and apply principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Abbott, Dumesic, Graham, Huber, Klingenberg, Kuech, Lynn, Maravelias (Assistant Chair), Mavrikakis (Chair), Murphy, Palecek, Rawlings, Root, Shusta, Yin; Associate Professors Pfleger, Reed, Swaney; Assistant Professor Zavala

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consistently ranked as one of the best in the world. The department offers research opportunities in both traditional and emerging areas of research in chemical and biological engineering. These areas include energy-related science and technology, soft and hard materials science and engineering, systems engineering and optimization, catalysis, process control and design, nanotechnology, biotechnology, biomedical engineering, complex fluids, colloid and interfacial phenomena, atomic, molecular, and multiscale modeling, polymers (synthesis and processing), micro- and nano-electronics, environmental engineering and sustainability, reactor design, and atomic-scale design of surface reactivity. These areas of research are advanced by leveraging tools from the fields of applied mathematics, statistical mechanics, kinetics and catalysis, thermodynamics, and transport phenomena.

Research in the department is highly interdisciplinary, capitalizing on programs of national prominence such as the NSF Materials Research Science and Engineering Center (MRSEC), the nation's largest NIH-funded biotechnology training program, and the Computation and Informatics in Biology and Medicine training program. Interdisciplinary research opportunities are also available through the Materials Science Program, the Center for Nanotechnology, and the Rheology Research Center. Researchers in the department have access to state-of-the-art facilities for research, including facilities for nanofabrication and the life sciences.

Graduate students in the department are encouraged to participate in international research experiences, industry internships, and entrepreneurial activities.

For interests and activities of faculty members, along with a list of selected publications for each, see the department's faculty directory (<http://directory.engr.wisc.edu/che/faculty>).

## FUNDING

Financial support for qualified graduate students is available in the form of research assistantships, teaching assistantships, and fellowships.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed graduate-level coursework courses with the Graduate Level

Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count graduate coursework from other institutions toward the Minimum Graduate Degree Credit Requirement and the Minimum Graduate coursework (50%) Requirement. No credits from other institutions can be counted toward the Minimum Graduate Residence Credit Requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

A total of 7 undergraduate credits from the UW-Madison undergraduate degree may be counted toward coursework requirements. If those credits are numbered 300 or above, they may be counted toward the Minimum Graduate Degree Credit Requirement. If those credits are numbered 700 or above, they may be counted toward the Minimum Graduate coursework (50%) Requirement. No credits can be counted toward the Minimum Graduate Residence Credit Requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW-Madison Special student toward the Minimum Graduate Residence Credit Requirement, and the Minimum Graduate Degree Credit Requirement and the Minimum Graduate Coursework (50%) Requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Students must complete at least six semester courses (totaling at least 18 credits) in the CBE department. At least four of the six CBE courses shall be selected from these core graduate courses:

Code	Title	Credits
CBE 620	Intermediate Transport Phenomena	3
CBE 660	Intermediate Problems in Chemical Engineering	3
CBE 710	Advanced Chemical Engineering Thermodynamics	3
CBE 735	Kinetics and Catalysis	2-3
CBE 781	Biological Engineering: Molecules, Cells & Systems	3

At least two of the core graduate courses must be taken in the first semester of residence in the graduate program, and at least four core graduate courses must be completed with grades of B or better by the end of the second semester of residence. Students are expected to take a total of four courses in their first semester of residence.

The requirement of four core CBE graduate courses shall not be met by substitution of other courses. Students matriculating with an M.S. degree from another university may, with department approval, use up to two courses from their M.S. work toward the requirement of six CBE graduate courses.

Students taking advanced courses outside the department in excess of minor requirements may, with department approval, use up to two of these courses toward the requirement of six CBE graduate courses. Seminar courses may not be used to satisfy CBE course requirements.

Elective course requirement: Students must complete at least one course totaling at least three credits. A *B average* is required. Pass/fail or audit courses may not be used for the elective course requirement. Courses used to satisfy the minor program may not be used for the elective course requirement. Advisor approval is required and secured through submission of the Ph.D. Elective Course Approval Form. Elective courses can be foreign language courses.

Teaching assistantship: Each student in the Ph.D. program is required to serve as a teaching assistant (TA) for two semesters. Under normal circumstances, each student should serve as a TA one semester of the second year and one semester of the third year. Requests for alternate arrangements, partial or full waiver of the requirement, should be submitted in writing to the graduate credentials committee.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Students must complete minor requirements, elective course requirements, and a teaching assistant requirement.

In addition to studies in chemical and biological engineering, the Ph.D. candidate is required to undertake a program of coursework in a field other than chemical and biological engineering. This requirement may be satisfied by a departmental minor (option A) or a distributed minor (option B).

The minor, whether Option A or B, is designed to represent a coherent body of work, and should not be simply an after-the-fact ratification of a number of courses taken outside the major department. To ensure coherence, the student must consult with his or her advisor. The Ph.D. Minor Agreement Form should be submitted for approval at an early date, before the student is halfway through the proposed course sequence.

## MINOR OPTION A

For Minor Option A, the student is required to complete at least 9 graduate credits in a single department. The program of coursework must be approved by the minor department. Departments may have specific course requirements for their minor and may require more than the 9-credit minimum. The student must meet the requirements of the minor department for satisfactory completion of the minor.

## MINOR OPTION B

If the needs of the student would best be served by preparation not available as a departmental minor, the department may permit the student and the advisor to develop a special program in lieu of a departmental minor. To meet the requirements of this Minor Option B, the student must complete at least 9 graduate credits in two or more departments outside the major, in related courses selected for their relevance to the student's particular area of concentration. The proposed program of coursework must be approved by the Department of Chemical and Biological Engineering.

## OVERALL GRADUATE GPA REQUIREMENT

GPA of 3.0 or better is required.

## OTHER GRADE REQUIREMENTS

At least two of the core courses must be taken in the first semester of residence in the graduate program, and at least four core graduate courses must be completed with grades of B or better by the end of the second semester of residence. Students are expected to take a total of four courses in their first semester of residence. A student who receives one grade of BC or lower in a core course remains in the Ph.D. program, but must earn grades of B or better in the other four courses.

To qualify for the Ph.D. program, a graduate student's GPA in four core CBE courses and grade on the prelim exam must sum to 6.0 or higher.

## PROBATION POLICY

A student who receives more than one grade of BC or lower in core graduate courses will be placed in the M.S. program. Upon completion of the M.S. program, the student may petition the full faculty for readmission to the Ph.D. program.

A student who does not receive an aggregate score of 6.0 or higher in the qualifying process is placed in the M.S. program. Upon completion of the M.S. program, the student may petition the full faculty to be readmitted to the Ph.D. program.

Students placed in the M.S. program are expected to finish the M.S. program within five semesters of admission into the Ph.D. program.

## ADVISOR / COMMITTEE

All students are required to conduct a fourth year research progress meeting with their thesis committee after passing the preliminary examination.

In consultation with the major professor, the student chooses an examination committee of five faculty members, including at least one, but not more than two, from outside the department. It is anticipated that three members of the prelim exam committee (the advisor and two faculty members in the same general research area) will serve on the final oral examination committee.

## ASSESSMENTS AND EXAMINATIONS

A Ph.D. candidate who has met the grade requirements must complete a preliminary exam consisting of a written report and oral examination.

During the fall semester of the fourth year of the program, candidates will participate in a mandatory research progress meeting with their thesis committee.

The Ph.D. candidate defends a written thesis in a final oral examination.

## TIME CONSTRAINTS

The Graduate School requires that the final oral examination for the Ph.D. must be taken within five years of passing the preliminary exam or the student will be required to take another preliminary exam.

The CBE department expects students to complete their Ph.D. degree in within five years. Any student unable to defend his or her thesis in this period must petition the faculty for an extension by July 1 of the fifth year, specifying reasons for the request and length of requested extension.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Students with a strong background in chemical engineering or related field and a strong interest in research are encouraged to apply for admission. Most applicants accepted into the program have grade-point averages well above the Graduate School minimum of 3.0 on a 4.0 scale. All applicants are required to take the Graduate Record Exam (GRE) general test. Applications are evaluated on the basis of previous academic record, GRE scores, letters of recommendation, and personal statement. The Chemical & Biological Engineering department does not consider applications for a terminal M.S. degree; the department only admits to the Ph.D. The M.S. degree is not a prerequisite for the Ph.D. degree.

Applicants with degrees in the physical or life sciences or other engineering fields are encouraged to apply for admission into the Ph.D. graduate program. These students should contact the chair of the graduate admissions committee to discuss their preparation for the graduate program. Students are not accepted for spring semester except when space is available. Fall applications and supporting materials **must be received by December 30**.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate an ability to synthesize knowledge from a subset of the biological, physical, and social sciences to help frame problems critical to the future of their discipline.
- conduct original research.
- demonstrate an ability to create new knowledge and communicate it to their peers.

### PROFESSIONAL CONDUCT

- fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Abbott, Dumesic, Graham, Huber, Klingenberg, Kuech, Lynn, Maravelias (Assistant Chair), Mavrikakis (Chair), Murphy, Palecek, Rawlings, Root, Shusta, Yin; Associate Professors Pflieger, Reed, Swaney; Assistant Professor Zavala

## CHEMISTRY

**Administrative Unit:** Chemistry

**College/School:** College of Letters & Science

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

**Specializations:** Analytical, Chemical Biological, Inorganic, Materials, Organic, or Physical Chemistry

The department offers a master of science and a doctor of philosophy in chemistry. Specializations within the program are analytical, inorganic, materials, organic, and physical chemistry as well as chemical biology. Breadth coursework may be taken in other departments including physics, mathematics, computer sciences, biochemistry, chemical engineering, and in fields other than the student's specialization within the Department of Chemistry.

Excellent facilities are available for research in a wide variety of specialized fields including synthetic and structural chemistry; natural product and bio-organic chemistry; molecular dynamics and photochemistry; biophysical, bioanalytical, and bioinorganic chemistry; spectroscopy (including magnetic resonance and microwave), theoretical and experimental chemical physics, chemical dynamics, quantum and statistical mechanics; macromolecular and polymer chemistry, materials science, surface and solid-state chemistry; x-ray crystallography, lasers, and light scattering; and chemical education. Programs are assisted by department computing and instrument centers and by other facilities on campus including those of the Division of Information Technology (DoIT).

Information on the research fields of faculty members is available on the chemistry website (<http://www.chem.wisc.edu>) and in a brochure available from the department.

The department offers opportunities for graduate students to obtain teaching experience. Financial assistance is available to most graduate students in the form of teaching or research assistantships, fellowships, or traineeships.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Chemistry, Doctoral Minor (p. 157)
- Chemistry, M.S. (p. 157)
- Chemistry, Ph.D. (p. 159)

## PEOPLE

**Faculty:** Professors McMahon (chair), Andrew, Berry, Blackwell, Brunold, Burke, Burstyn, Cavagnero, Choi, Coon, Crim, Cui, Ediger, Fredrickson, Garand, Ge, Gellman, Gilbert, Goldsmith, Gopalan, Hamers, Hermans, Hsung, Jackson, Jin, Kiessling, Kuech, Landis, Li, Lynn, Mecozzi, Middlecamp, Moore, Nathanson, Pedersen, Raines, Record, Schmidt, Schomaker, Schwartz, Shakhshiri, Sibert, Skinner, Smith, Stahl, Strieter, Tang, Weisshaar, Woods, Wright, Yethiraj, Yoon, Yu, Zanni

## CHEMISTRY, DOCTORAL MINOR

### CHEMISTRY, M.S.

The department offers a master of science and a doctor of philosophy in chemistry. Specializations within the program are analytical, inorganic, materials, organic, and physical chemistry as well as chemical biology. Breadth coursework may be taken in other departments including physics, mathematics, computer sciences, biochemistry, chemical engineering, and in fields other than the student's specialization within the Department of Chemistry.

Excellent facilities are available for research in a wide variety of specialized fields including synthetic and structural chemistry; natural product and bio-organic chemistry; molecular dynamics and photochemistry; biophysical, bioanalytical, and bioinorganic chemistry; spectroscopy (including magnetic resonance and microwave), theoretical and experimental chemical physics, chemical dynamics, quantum and statistical mechanics; macromolecular and polymer chemistry, materials science, surface and solid-state chemistry; x-ray crystallography, lasers, and light scattering; and chemical education. Programs are assisted by department computing and instrument centers and by other facilities on campus including those of the Division of Information Technology (DoIT).

Information on the research fields of faculty members is available on the chemistry website (<http://www.chem.wisc.edu>) and in a brochure available from the department.

The department offers opportunities for graduate students to obtain teaching experience. Financial assistance is available to most graduate students in the form of teaching or research assistantships, fellowships, or traineeships.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level

Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 12 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Up to 7 credits numbered 300 or above from a UW–Madison undergraduate career are allowed to count toward the minimum graduate degree credit requirement; if those 7 credits are numbered 700 or above from a UW–Madison undergraduate career, they are allowed to count toward the minimum graduate coursework requirement. **All credits so counted** must be over and above the minimum credits that were required by the original undergraduate degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student toward the residence and degree credit requirements; if those 15 credits of coursework taken as a UW–Madison Special student are numbered 700 or above, they are allowed to count toward the minimum graduate coursework requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Prospective graduate students are expected to have satisfactorily completed the equivalent in class and lab of the fundamental courses in chemistry offered at UW–Madison, one year of physics, and mathematics through calculus. Students who have not completed all the prerequisites may be admitted in exceptional cases, but any deficiencies must be made up in the first year of graduate study.

A grade point average of 3.0 (on a 4.0 scale) in the last 60 hours of undergraduate work is the minimum required for admission to graduate studies. The Graduate Record Exam (GRE) is also required. The subject test is recommended for fellowship applicants, and required for international applicants. Students for whom English is not the native language are required to present scores from the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS). Before teaching assistant appointments can be finalized, students for whom English is a second language must participate in the SPEAK Test, the institutional version of the Test of Spoken English (TSE).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, and elaborates the theories, research methods, and approaches to inquiry in an area of chemistry.
- Identifies sources and assembles evidence pertaining to questions or challenges in an area of chemistry.
- Demonstrates understanding of chemical science in a historical, social, or global context.
- Demonstrates the ability to select and utilize appropriate methodologies and practices to solve chemical problems.
- Evaluates and synthesizes information pertaining to questions and challenges in an area of chemistry.
- Communicates clearly in both written and oral formats.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors McMahon (chair), Andrew, Berry, Blackwell, Brunold, Burke, Burstyn, Cavagnero, Choi, Coon, Crim, Cui, Ediger, Fredrickson, Garand, Ge, Gellman, Gilbert, Goldsmith, Gopalan, Hamers, Hermans, Hsung, Jackson, Jin, Kiessling, Kuech, Landis, Li, Lynn, Mecozzi, Middlecamp, Moore, Nathanson, Pedersen, Raines, Record, Schmidt, Schomaker, Schwartz, Shakhshiri, Sibert, Skinner, Smith, Stahl, Strieter, Tang, Weisshaar, Woods, Wright, Yethiraj, Yoon, Yu, Zanni

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Excellent facilities are available for research in a wide variety of specialized fields including synthetic and structural chemistry; natural product and bio-organic chemistry; molecular dynamics and photochemistry; biophysical, bioanalytical, and bioinorganic chemistry; spectroscopy (including magnetic resonance and microwave), theoretical and experimental chemical physics, chemical dynamics, quantum and statistical mechanics; macromolecular and polymer chemistry, materials science, surface and solid-state chemistry; x-ray crystallography, lasers, and light scattering; and chemical education. Programs are assisted by department computing and instrument centers and by other facilities on campus including those of the Division of Information Technology (DoIT).

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The department offers opportunities for graduate students to obtain teaching experience. Financial assistance is available to most graduate students in the form of teaching or research assistantships, fellowships, or traineeships.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

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Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 12 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Up to 7 credits numbered 300 or above from a UW-Madison undergraduate career are allowed to count toward the minimum graduate degree credit requirement; if those 7 credits are numbered 700 or above from a UW-Madison undergraduate career, they are allowed to count toward the minimum graduate coursework requirement. **All credits so counted** must be over and above the minimum credits that were required by the original undergraduate degree. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison special student toward the residence and degree credit requirements; if those 15 credits of coursework taken as a UW-Madison Special student are numbered 700 or above, they are allowed to count toward the minimum graduate coursework requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Prospective graduate students are expected to have satisfactorily completed the equivalent in class and lab of the fundamental courses in chemistry offered at UW–Madison, one year of physics, and mathematics through calculus. Students who have not completed all the prerequisites may be admitted in exceptional cases, but any deficiencies must be made up in the first year of graduate study.

A grade point average of 3.0 (on a 4.0 scale) in the last 60 hours of undergraduate work is the minimum required for admission to graduate studies. The Graduate Record Exam (GRE) is also required. The subject test is recommended for fellowship applicants, and required for international applicants. Students for whom English is not the native language are required to present scores from the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS). Before teaching assistant appointments can be finalized, students for whom English is a second language must participate in the SPEAK Test, the institutional version of the Test of Spoken English (TSE).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, and practice within an area of chemistry.
- Formulates ideas, concepts, designs, and techniques beyond the current boundaries of knowledge within an area of chemistry.
- Creates research and scholarship that makes a substantive contribution to an area of chemistry.
- Demonstrates breadth within their learning experiences.
- Advances the beneficial societal impacts of research in chemistry.
- Communicates complex scientific ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters safe, ethical, and professional conduct.

### ADDITIONAL LEARNING GOALS

- All doctoral degrees awarded in the chemistry department are research-based and culminate in a dissertation. Regardless of whether an individual is awarded a master's degree, the doctoral level learning goals are inclusive of the master's level learning goals.

## PEOPLE

**Faculty:** Professors McMahon (chair), Andrew, Berry, Blackwell, Brunold, Burke, Burstyn, Cavagnero, Choi, Coon, Crim, Cui, Ediger, Fredrickson, Garand, Ge, Gellman, Gilbert, Goldsmith, Gopalan, Hamers, Hermans, Hsung, Jackson, Jin, Kiessling, Kuech, Landis, Li, Lynn, Mecozzi, Middlecamp, Moore, Nathanson, Pedersen, Raines, Record, Schmidt, Schomaker, Schwartz, Shakhashiri, Sibert, Skinner, Smith, Stahl, Strieter, Tang, Weisshaar, Woods, Wright, Yethiraj, Yoon, Yu, Zanni



## CHICANA/O AND LATINA/O STUDIES

**Administrative Unit:** Chicana/o and Latina/o Studies

**College/School:** College of Letters & Science

**Minors and Certificates:** Doctoral Minor

In 2007, the University of Wisconsin–Madison Graduate School approved the Chicana/o/Latina/o doctoral minor. It became the first such program to be offered in this field at the UW–Madison as well as the University of Wisconsin System. The Chicana/o and Latina/o Studies minor program offers a comparative and transnational approach to the study of Mexican- and Latin-American-origin communities in the United States, including the Commonwealth of Puerto Rico. The curriculum offers students the opportunity to study issues of race, ethnicity, class, gender, and sexuality from both historical and contemporary perspectives. The interdisciplinary program is designed to provide students with an extensive knowledge base and the intellectual tools to understand the unity and diversity of U.S. Latina/o populations. The primary objective of the program is to offer students a multidisciplinary, broad-based perspective on the study of Chicana/os and Latina/os, as well as to introduce them to the central questions, topics, and applications within this field of inquiry. Chicana/o and Latina/o studies maintains a central focus on U.S. Chicana/o and Latina/o populations, offering a variety of courses, some focusing on particular national-origin groups or specific academic disciplines, and others organized comparatively and across disciplinary boundaries.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Chicana/o and Latina/o Studies, Doctoral Minor (p. 161)

### PEOPLE

**Faculty:** See Faculty (<http://www.chicla.wisc.edu/faculty>) on the program website.

## CHICANA/O AND LATINA/O STUDIES, DOCTORAL MINOR

### REQUIREMENTS

Graduate students interested in a minor in Chicana/o and Latina/o studies are required to take a minimum of 12 credits of graduate-level coursework (numbered 300 and above) that has been reviewed and approved for its relevance to the CLS program. A list of current CLS courses can be found here (<https://my.wisc.edu/CourseGuideRedirect/BrowseByTitle?subjectCode=228>). In addition to these courses, CLS faculty members offer courses in their home departments which may count toward the minor.

These courses have a specific emphasis on Chicana/o and Latina/o issues or have a central focus on comparative cultures with which Chicana/o and Latina/o issues are emphasized. Graduate students

are expected to complete graduate-level work (e.g., research and/or scholarly papers and classroom presentations) and meet with faculty to supplement their graduate learning experience. Because many courses taught by faculty across the campus can fulfill these criteria, the program has been designed to be flexible enough to accommodate students' primary fields of study and interests. Each student's focus will be determined in consultation between the student, the CLS faculty mentor, and the CLS director.

### PEOPLE

**Faculty:** See Faculty (<http://www.chicla.wisc.edu/faculty>) on the program website.

# CIVIL AND ENVIRONMENTAL ENGINEERING

**Administrative Unit:** Civil and Environmental Engineering

**College/School:** College of Engineering

**Admitting Plans:** M.S., M.Eng., Ph.D.

**Degrees Offered:** M.S. in Civil and Environmental Engineering; M.S. in Geological Engineering; M.Eng. in Civil and Environmental Engineering; Ph.D. in Civil and Environmental Engineering

**Minors and Certificates:** Doctoral Minor in Civil and Environmental Engineering; Doctoral Minor in Geological Engineering

**Named Options:** Construction Engineering and Management (M.S.); Environmental Engineering (M.Eng.); Environmental Science and Engineering (M.S.); Geological/Geotechnical Engineering (M.S.); Structural Engineering (M.S.); Transportation Engineering (M.S.); Water Resources Engineering (M.S.)

The mission of the civil and environmental engineering program is to develop leaders in education, industry, government and entrepreneurship who can use their acquired skills to improve society. The academic program provides a comprehensive framework of courses in the broad area of civil and environmental engineering with opportunities to develop specialized expertise. It also emphasizes the development of integrated teamwork abilities, communication, leadership, and creative research skills. Graduate study in the department offers an opportunity to undertake advanced study and research in various areas of specialization. Areas include:

- *Construction engineering and management:* construction engineering and management, sustainable design and construction, and advanced construction and computer modeling
- *Environmental engineering:* water supply, water quality, water treatment, wastewater treatment, solid and hazardous waste management, air pollution, biotechnology, and alternative energy
- *Geo and pavement engineering:* geotechnical, geological and geoenvironmental engineering, pavement materials and design, asphalt binders and mixtures, geosynthetics, in-situ testing and engineering geophysics, recycled materials in sustainable construction
- *Structural engineering:* structural analysis and design of wood, concrete, steel, and highway bridge structures; design for earthquake and wind loading; seismic rehabilitation
- *Transportation engineering:* highway and traffic engineering, intelligent transportation systems, transportation planning, freight, and infrastructure management, transportation safety, user comprehension and behavior, advanced driving- and micro-simulation
- *Water resources/environmental fluid mechanics:* analysis, measurement, modeling of currents, flows, and waves in natural and constructed systems; surface and groundwater hydrology; hydraulic engineering; coastal engineering; sedimentation and transport processes; infrastructure impacts of extreme weather events, hydroecology and stream restoration

Students may also pursue studies in the broad fields of environmental engineering/science and systems analysis. Areas of specialization are organized into a constructed facilities division (including transportation engineering, structural engineering, construction engineering and management, pavement engineering, materials for constructed facilities,

and geotechnical engineering) and an environmental engineering division (including geoenvironmental engineering, environmental fluid mechanics and water resources engineering, environmental science and technology, and environmental and water chemistry).

Degrees require a coordinated core program of courses, selected from CEE and other department/program offerings. Graduate degree programs closely associated with the department include human factors, environmental chemistry and technology, water resources management, geological engineering, land resources, and limnology and marine science.

In support of the instructional and research programs are laboratory facilities for highway materials; transportation systems; driving simulation and human factors; soil mechanics and geotechnical engineering; coastal and hydraulic engineering; environmental fluid mechanics; environmental engineering processes and engineering chemistry; structural engineering; geoenvironmental engineering, and geotechnical engineering research. Water resources engineering, environmental engineering, and water chemistry have additional research facilities in the Water Science and Engineering Laboratory on the shore of Lake Mendota. The Environmental Engineering Field Laboratory is located at the Nine-Springs Madison Metropolitan Wastewater Treatment Plant.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Civil and Environmental Engineering, Doctoral Minor (p. 163)
- Civil and Environmental Engineering, M.Eng. (p. 163)
- Civil and Environmental Engineering, M.S. (p. 165)
- Civil and Environmental Engineering, Ph.D. (p. 168)
- Geological Engineering, Doctoral Minor (p. 170)
- Geological Engineering, M.S. (p. 170)
- Geological Engineering, Ph.D. (p. 172)

## PEOPLE

**Faculty:** Professors Noyce (chair), Adams, Bahia, Cramer, Feigl, Hanna, Harrington, Holloway, Hurley, Karthikeyan, Lee, Likos, Long, Noguera, McMahon, Park, Parra-Montesinos, Pedersen, Potter, Ran, Russell, Schauer, Wu; Associate Professors Ahn, Fratta, Loheide II, Pincheira Tinjum; Assistant Professors Block, Ginder-Vogel, Hedegaard, Hicks, Remucal, Sone, Wright. See also CEE faculty (<http://directory.engr.wisc.edu/cee/faculty>).

**Geological Engineering Faculty:** Professors Likos (chair) (Civil and Environmental Engineering), Anderson (Geoscience), Bahr (Geoscience), Goodwin (Geoscience), Thurber (Geology and Geoscience), Tikoff (Geoscience), Tobin (Geoscience), Wang (Geoscience), Wu (Civil and Environmental Engineering), Feigl (Geoscience); Associate Professors Fratta (Civil and Environmental Engineering), Loheide (Civil and Environmental Engineering); Assistant Professors Cardiff (Geoscience), Tinjum (Engineering Professional Development) Ginder-vogel (Civil and Environmental Engineering), Sone (Civil and Environmental Engineering); Affiliate Professors Kung (Soil Science), Lowery (Soil Science), Plesha (Engineering Physics), Potter (Civil and Environmental Engineering). See also GLE faculty (<http://gle.wisc.edu/faculty-and-staff>).

## CIVIL AND ENVIRONMENTAL ENGINEERING, DOCTORAL MINOR

Students from departments outside of Civil and Environmental Engineering can receive a doctoral minor in civil and environmental engineering. The minor must be approved by the Department of Civil and Environmental Engineering. The minor approval form is available at the department office. The completed form must be returned to the department office for review and approval.

### REQUIREMENTS

1. A minimum of 9 formal course credits (not independent study or research credits) taken in Civil and Environmental Engineering.
2. Courses must be numbered 300 or above in Civil and Environmental Engineering.
3. Two of the courses must be numbered 500 or above in Civil and Environmental Engineering.
4. Only one of the courses may be cross listed in the student's major department and cannot be used to satisfy the student's major requirements.
5. No examinations are required other than those given in each course.

### PEOPLE

**Faculty:** Professors Noyce (chair), Adams, Bahia, Cramer, Feigl, Hanna, Harrington, Holloway, Hurley, Karthikeyan, Lee, Likos, Long, Noguera, McMahon, Park, Parra-Montesinos, Pedersen, Potter, Ran, Russell, Schauer, Wu; Associate Professors Ahn, Fratta, Loheide II, Pincheira Tinjum; Assistant Professors Block, Ginder-Vogel, Hedegaard, Hicks, Remucal, Sone, Wright. See also CEE faculty (<http://directory.engr.wisc.edu/cee/faculty>).

**Geological Engineering Faculty:** Professors Likos (chair) (Civil and Environmental Engineering), Anderson (Geoscience), Bahr (Geoscience), Goodwin (Geoscience), Thurber (Geology and Geoscience), Tikoff (Geoscience), Tobin (Geoscience), Wang (Geoscience), Wu (Civil and Environmental Engineering), Feigl (Geoscience); Associate Professors Fratta (Civil and Environmental Engineering), Loheide (Civil and Environmental Engineering); Assistant Professors Cardiff (Geoscience), Tinjum (Engineering Professional Development) Ginder-vogel (Civil and Environmental Engineering), Sone (Civil and Environmental Engineering); Affiliate Professors Kung (Soil Science), Lowery (Soil Science), Plesha (Engineering Physics), Potter (Civil and Environmental Engineering). See also GLE faculty (<http://gle.wisc.edu/faculty-and-staff>).

## CIVIL AND ENVIRONMENTAL ENGINEERING, M.ENG.

### M.ENG. NAMED OPTION ENVIRONMENTAL ENGINEERING (ONLINE)

Environmental engineering programs are offered both on campus and online. The M.Eng. named option: environmental engineering is a fully online degree that includes a full curriculum of courses incorporating the latest research and practices in water supply, wastewater reclamation and reuse, resource recovery, and urban storm water management. The M.Eng. degree has been developed to give the practicing environmental engineer and scientist the skills needed to meet contemporary and future challenges. For more information about the online M.Eng. degree, see the program website (<https://www.engr.wisc.edu/department/civil-environmental-engineering/academics/master-engineering-civil-environmental-engineering-2>).

### FUNDING

Financial support is available through fellowships, project/program assistantships (PA), research assistantships (RA), and teaching assistantships (TA). Applicants apply for financial support when filling out the Graduate School Application Form.

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.S., M.Eng., with available named option Environmental Engineering

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.S., M.Eng.: With program approval, students are allowed to count credits of graduate coursework from other institutions. Approved credits will be allowed to count toward the minimum graduate degree credit

requirement and the minimum graduate coursework requirement, but will not count toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.Eng. named option Environmental Engineering: With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Approved credits will be allowed to count toward the minimum graduate degree credit requirement and the minimum graduate coursework requirement, but will not count toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

With program approval, no more than 7 credits of coursework numbered 300 or higher from a UW–Madison undergraduate degree are allowed to count only toward the minimum graduate degree credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

M.S., M.Eng.: With program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW–Madison special student toward the Minimum Graduate Residence Credit Requirement, and the Minimum Graduate Degree Credit Requirement; those courses numbered 700 or above may be applied toward the Minimum Graduate Coursework (50%) Requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.Eng. named option Environmental Engineering: With program approval students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison special student. Coursework earned five or more year prior to admission to a master's degree is not allowed to satisfy requirements.

### **CREDITS PER TERM ALLOWED**

15 credits

### **PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

### **OVERALL GRADUATE GPA REQUIREMENT**

3.00

### **OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### **PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### **ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### **ASSESSMENT AND EXAMINATIONS**

Contact the program for information on required assessments and examinations.

### **TIME CONSTRAINTS**

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### **LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

## **ADMISSIONS**

All applicants must meet the Graduate School's admission requirements (<http://grad.wisc.edu/admissions/requirements>) to be considered for admission. In addition, applicants must also meet the department's more stringent admission requirements listed below to be considered for admission:

- **Grades:** A minimum undergraduate grade point average (GPA) of 3.00 (on a 4.00 scale) on the equivalent of the last 60 semester hours (approximately two years of work) is required for domestic applicants. A strong academic performance comparable to an average of B or above grades for all undergraduate course work is required for international applicants.
- **Degree:** A bachelor's degree from an ABET-accredited engineering program or from a recognized international institution is required. Applicants who do not have a bachelor's degree as specified above may study for the master of science in civil and environmental engineering (Program Option C); however, to become eligible for this program, applicants must meet the department's deficiency requirements, some of which may be completed as deficiencies after admission. As a general rule, students with more than 12 credits in deficiencies are not admitted to the graduate program. Rather, they are encouraged to enroll as special students until more of their deficiencies are satisfied. All plans of study within this option must be approved by the department faculty. The deficiency requirements for applicants without a bachelor's degree from an ABET-accredited engineering program or from a recognized international institution must be obtained from the department.

A complete graduate application is required before an application will be reviewed by the faculty. A complete graduate application contains the following:

- **Graduate School Application Form and application fee:** Applicants must submit an online application to the UW–Madison Graduate School. See Graduate School Admissions (<http://grad.wisc.edu/admissions/requirements>) to apply.
- **Statement of purpose:** A statement of purpose for graduate study must be submitted through an applicant's online UW–Madison Graduate School application. Please limit this important document to 1,000 words.
- **Letters of recommendation:** Three letters of recommendation must be submitted through an applicant's online UW–Madison Graduate School application.
- **Transcripts:** One official transcript from each institution you have attended must be sent to the department directly. International academic records must be in the original language accompanied by an official English translation. Documents must be issued by the institution with the official seal/stamp and an official signature.
- **Graduate Record Examination (GRE) Scores:** Graduate Record Examination (GRE) General Test scores are required for all applicants.
- **English proficiency scores:** Applicants whose native language is not English, or whose undergraduate instruction was not in English, must provide an English proficiency test score. Scores are accepted if they are within two years of the start of the admission term. See Graduate School Admission Requirements (<http://grad.wisc.edu/admissions/requirements>) for more information on the English proficiency requirement.

Students interested in pursuing the online M.Eng. degree must follow the steps to apply found on the program website (<https://epd.wisc.edu/online-degree/environmental-engineering/#/apply>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

### PROFESSIONAL CONDUCT

- fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Noyce (chair), Adams, Bahia, Cramer, Feigl, Hanna, Harrington, Holloway, Hurley, Karthikeyan, Lee, Likos, Long, Noguera, McMahon, Park, Parra-Montesinos, Pedersen, Potter, Ran, Russell, Schauer, Wu; Associate Professors Ahn, Fratta, Loheide II, Pincheira Tinjum; Assistant Professors Block, Ginder-Vogel, Hedegaard, Hicks, Remucal, Sone, Wright. See also CEE faculty (<http://directory.engr.wisc.edu/cee/faculty>).

**Geological Engineering Faculty:** Professors Likos (chair) (Civil and Environmental Engineering), Anderson (Geoscience), Bahr (Geoscience), Goodwin (Geoscience), Thurber (Geology and Geoscience), Tikoff (Geoscience), Tobin (Geoscience), Wang (Geoscience), Wu (Civil and

Environmental Engineering), Feigl (Geoscience); Associate Professors Fratta (Civil and Environmental Engineering), Loheide (Civil and Environmental Engineering); Assistant Professors Cardiff (Geoscience), Tinjum (Engineering Professional Development) Ginder-vogel (Civil and Environmental Engineering), Sone (Civil and Environmental Engineering); Affiliate Professors Kung (Soil Science), Lowery (Soil Science), Plesha (Engineering Physics), Potter (Civil and Environmental Engineering). See also GLE faculty (<http://gle.wisc.edu/faculty-and-staff>).

## CIVIL AND ENVIRONMENTAL ENGINEERING, M.S.

The mission of the civil and environmental engineering program is to develop leaders in education, industry, government and entrepreneurship who can use their acquired skills to improve society. The academic program provides a comprehensive framework of courses in the broad area of civil and environmental engineering with opportunities to develop specialized expertise. It also emphasizes the development of integrated teamwork abilities, communication, leadership, and creative research skills. Graduate study in the department offers an opportunity to undertake advanced study and research in various areas of specialization. Areas include:

- **Construction engineering and management:** construction engineering and management, sustainable design and construction, and advanced construction and computer modeling
- **Environmental engineering:** water supply, water quality, water treatment, wastewater treatment, solid and hazardous waste management, air pollution, biotechnology, and alternative energy
- **Geo and pavement engineering:** geotechnical, geological and geoenvironmental engineering, pavement materials and design, asphalt binders and mixtures, geosynthetics, in-situ testing and engineering geophysics, recycled materials in sustainable construction
- **Structural engineering:** structural analysis and design of wood, concrete, steel, and highway bridge structures; design for earthquake and wind loading; seismic rehabilitation
- **Transportation engineering:** highway and traffic engineering, intelligent transportation systems, transportation planning, freight, and infrastructure management, transportation safety, user comprehension and behavior, advanced driving- and micro-simulation
- **Water resources/environmental fluid mechanics:** analysis, measurement, modeling of currents, flows, and waves in natural and constructed systems; surface and groundwater hydrology; hydraulic engineering; coastal engineering; sedimentation and transport processes; infrastructure impacts of extreme weather events, hydroecology and stream restoration

Students may also pursue studies in the broad fields of environmental engineering/science and systems analysis. Areas of specialization are organized into a constructed facilities division (including transportation engineering, structural engineering, construction engineering and management, pavement engineering, materials for constructed facilities, and geotechnical engineering) and an environmental engineering division (including geoenvironmental engineering, environmental fluid mechanics and water resources engineering, environmental science and technology, and environmental and water chemistry).

Degrees require a coordinated core program of courses, selected from CEE and other department/program offerings. Graduate degree

programs closely associated with the department include human factors, environmental chemistry and technology, water resources management, geological engineering, land resources, and limnology and marine science.

In support of the instructional and research programs are laboratory facilities for highway materials; transportation systems; driving simulation and human factors; soil mechanics and geotechnical engineering; coastal and hydraulic engineering; environmental fluid mechanics; environmental engineering processes and engineering chemistry; structural engineering; geoenvironmental engineering, and geotechnical engineering research. Water resources engineering, environmental engineering, and water chemistry have additional research facilities in the Water Science and Engineering Laboratory on the shore of Lake Mendota. The Environmental Engineering Field Laboratory is located at the Nine-Springs Madison Metropolitan Wastewater Treatment Plant.

## FUNDING

Financial support is available through fellowships, project/program assistantships (PA), research assistantships (RA), and teaching assistantships (TA). Applicants apply for financial support when filling out the Graduate School Application Form.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., M.Eng., with available named option Environmental Engineering

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.S., M.Eng.: With program approval, students are allowed to count credits of graduate coursework from other institutions. Approved credits will be allowed to count toward the minimum graduate degree credit requirement and the minimum graduate coursework requirement, but will not count toward the minimum graduate residence credit requirement.

Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.Eng. named option Environmental Engineering: With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Approved credits will be allowed to count toward the minimum graduate degree credit requirement and the minimum graduate coursework requirement, but will not count toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, no more than 7 credits of coursework numbered 300 or higher from a UW-Madison undergraduate degree are allowed to count only toward the minimum graduate degree credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

M.S., M.Eng.: With program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW-Madison special student toward the Minimum Graduate Residence Credit Requirement, and the Minimum Graduate Degree Credit Requirement; those courses numbered 700 or above may be applied toward the Minimum Graduate Coursework (50%) Requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.Eng. named option Environmental Engineering: With program approval students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison special student. Coursework earned five or more year prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

All applicants must meet the Graduate School's admission requirements (<http://grad.wisc.edu/admissions/requirements>) to be considered for admission. In addition, applicants must also meet the department's more stringent admission requirements listed below to be considered for admission:

- **Grades:** A minimum undergraduate grade point average (GPA) of 3.00 (on a 4.00 scale) on the equivalent of the last 60 semester hours (approximately two years of work) is required for domestic applicants. A strong academic performance comparable to an average of B or above grades for all undergraduate course work is required for international applicants.
- **Degree:** A bachelor's degree from an ABET-accredited engineering program or from a recognized international institution is required. Applicants who do not have a bachelor's degree as specified above may study for the master of science in civil and environmental engineering (Program Option C); however, to become eligible for this program, applicants must meet the department's deficiency requirements, some of which may be completed as deficiencies after admission. As a general rule, students with more than 12 credits in deficiencies are not admitted to the graduate program. Rather, they are encouraged to enroll as special students until more of their deficiencies are satisfied. All plans of study within this option must be approved by the department faculty. The deficiency requirements for applicants without a bachelor's degree from an ABET-accredited engineering program or from a recognized international institution must be obtained from the department.

A complete graduate application is required before an application will be reviewed by the faculty. A complete graduate application contains the following:

- **Graduate School Application Form and application fee:** Applicants must submit an online application to the UW–Madison Graduate School. See Graduate School Admissions (<http://grad.wisc.edu/admissions/requirements>) to apply.
- **Statement of purpose:** A statement of purpose for graduate study must be submitted through an applicant's online UW–Madison Graduate School application. Please limit this important document to 1,000 words.
- **Letters of recommendation:** Three letters of recommendation must be submitted through an applicant's online UW–Madison Graduate School application.
- **Transcripts:** One official transcript from each institution you have attended must be sent to the department directly. International academic records must be in the original language accompanied by an official English translation. Documents must be issued by the institution with the official seal/stamp and an official signature.
- **Graduate Record Examination (GRE) Scores:** Graduate Record Examination (GRE) General Test scores are required for all applicants.
- **English proficiency scores:** Applicants whose native language is not English, or whose undergraduate instruction was not in English, must provide an English proficiency test score. Scores are accepted if they are within two years of the start of the admission term. See Graduate School Admission Requirements (<http://grad.wisc.edu/admissions/requirements>) for more information on the English proficiency requirement.

Students interested in pursuing the online M.Eng. degree must follow the steps to apply found on the program website (<https://epd.wisc.edu/online-degree/environmental-engineering/#/apply>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

### PROFESSIONAL CONDUCT

- fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Noyce (chair), Adams, Bahia, Cramer, Feigl, Hanna, Harrington, Holloway, Hurley, Karthikeyan, Lee, Likos, Long, Noguera, McMahon, Park, Parra-Montesinos, Pedersen, Potter, Ran, Russell, Schauer, Wu; Associate Professors Ahn, Fratta, Loheide II, Pincheira Tinjum; Assistant Professors Block, Ginder-Vogel, Hedegaard, Hicks, Remucal, Sone, Wright. See also CEE faculty (<http://directory.engr.wisc.edu/cee/faculty>).

**Geological Engineering Faculty:** Professors Likos (chair) (Civil and Environmental Engineering), Anderson (Geoscience), Bahr (Geoscience), Goodwin (Geoscience), Thurber (Geology and Geoscience), Tikoff (Geoscience), Tobin (Geoscience), Wang (Geoscience), Wu (Civil and

Environmental Engineering), Feigl (Geoscience); Associate Professors Fratta (Civil and Environmental Engineering), Loheide (Civil and Environmental Engineering); Assistant Professors Cardiff (Geoscience), Tinjum (Engineering Professional Development) Ginder-vogel (Civil and Environmental Engineering), Sone (Civil and Environmental Engineering); Affiliate Professors Kung (Soil Science), Lowery (Soil Science), Plesha (Engineering Physics), Potter (Civil and Environmental Engineering). See also GLE faculty (<http://gle.wisc.edu/faculty-and-staff>).

## CIVIL AND ENVIRONMENTAL ENGINEERING, PH.D.

The mission of the civil and environmental engineering program is to develop leaders in education, industry, government and entrepreneurship who can use their acquired skills to improve society. The academic program provides a comprehensive framework of courses in the broad area of civil and environmental engineering with opportunities to develop specialized expertise. It also emphasizes the development of integrated teamwork abilities, communication, leadership, and creative research skills. Graduate study in the department offers an opportunity to undertake advanced study and research in various areas of specialization. Areas include:

- *Construction engineering and management*: construction engineering and management, sustainable design and construction, and advanced construction and computer modeling
- *Environmental engineering*: water supply, water quality, water treatment, wastewater treatment, solid and hazardous waste management, air pollution, biotechnology, and alternative energy
- *Geo and pavement engineering*: geotechnical, geological and geoenvironmental engineering, pavement materials and design, asphalt binders and mixtures, geosynthetics, in-situ testing and engineering geophysics, recycled materials in sustainable construction
- *Structural engineering*: structural analysis and design of wood, concrete, steel, and highway bridge structures; design for earthquake and wind loading; seismic rehabilitation
- *Transportation engineering*: highway and traffic engineering, intelligent transportation systems, transportation planning, freight, and infrastructure management, transportation safety, user comprehension and behavior, advanced driving- and micro-simulation
- *Water resources/environmental fluid mechanics*: analysis, measurement, modeling of currents, flows, and waves in natural and constructed systems; surface and groundwater hydrology; hydraulic engineering; coastal engineering; sedimentation and transport processes; infrastructure impacts of extreme weather events, hydroecology and stream restoration

Students may also pursue studies in the broad fields of environmental engineering/science and systems analysis. Areas of specialization are organized into a constructed facilities division (including transportation engineering, structural engineering, construction engineering and management, pavement engineering, materials for constructed facilities, and geotechnical engineering) and an environmental engineering division (including geoenvironmental engineering, environmental fluid mechanics and water resources engineering, environmental science and technology, and environmental and water chemistry).

Degrees require a coordinated core program of courses, selected from CEE and other department/program offerings. Graduate degree

programs closely associated with the department include human factors, environmental chemistry and technology, water resources management, geological engineering, land resources, and limnology and marine science.

In support of the instructional and research programs are laboratory facilities for highway materials; transportation systems; driving simulation and human factors; soil mechanics and geotechnical engineering; coastal and hydraulic engineering; environmental fluid mechanics; environmental engineering processes and engineering chemistry; structural engineering; geoenvironmental engineering, and geotechnical engineering research. Water resources engineering, environmental engineering, and water chemistry have additional research facilities in the Water Science and Engineering Laboratory on the shore of Lake Mendota. The Environmental Engineering Field Laboratory is located at the Nine-Springs Madison Metropolitan Wastewater Treatment Plant.

## FUNDING

Financial support is available through fellowships, project/program assistantships (PA), research assistantships (RA), and teaching assistantships (TA). Applicants apply for financial support when filling out the Graduate School Application Form.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count credits of graduate coursework from other institutions. Approved credits will be allowed to count toward the minimum graduate degree credit requirement and the minimum graduate coursework requirement, but will not count toward the minimum graduate residence credit requirement. Coursework earned ten



or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

With program approval, no more than 7 credits of coursework numbered 300 or higher from a UW–Madison undergraduate degree are allowed to count only toward the minimum graduate degree credit requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW–Madison special student toward the Minimum Graduate Residence Credit Requirement, and the Minimum Graduate Degree Credit Requirement; those courses numbered 700 or above may be applied toward the Minimum Graduate Coursework (50%) Requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### **CREDITS PER TERM ALLOWED**

15 credits

### **PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

### **DOCTORAL MINOR/BREADTH REQUIREMENTS**

Doctoral students must complete a doctoral minor.

### **OVERALL GRADUATE GPA REQUIREMENT**

3.00

### **OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### **PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### **ADVISOR**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

### **ASSESSMENT AND EXAMINATIONS**

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

### **TIME CONSTRAINTS**

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within 5 years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

### **LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

## **ADMISSIONS**

All applicants must meet the Graduate School's admission requirements (<http://grad.wisc.edu/admissions/requirements>) to be considered for admission. In addition, applicants must also meet the department's more stringent admission requirements listed below to be considered for admission:

- **Grades:** A minimum undergraduate grade point average (GPA) of 3.00 (on a 4.00 scale) on the equivalent of the last 60 semester hours (approximately two years of work) is required for domestic applicants. A strong academic performance comparable to an average of B or above grades for all undergraduate course work is required for international applicants.
- **Degree:** A bachelor's degree from an ABET-accredited engineering program or from a recognized international institution is required. Applicants who do not have a bachelor's degree as specified above may study for the master of science in civil and environmental engineering (Program Option C); however, to become eligible for this program, applicants must meet the department's deficiency requirements, some of which may be completed as deficiencies after admission. As a general rule, students with more than 12 credits in deficiencies are not admitted to the graduate program. Rather, they are encouraged to enroll as special students until more of their deficiencies are satisfied. All plans of study within this option must be approved by the department faculty. The deficiency requirements for applicants without a bachelor's degree from an ABET-accredited engineering program or from a recognized international institution must be obtained from the department.

A complete graduate application is required before an application will be reviewed by the faculty. A complete graduate application contains the following:

- *Graduate School Application Form and application fee:* Applicants must submit an online application to the UW–Madison Graduate School.

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- *Statement of purpose:* A statement of purpose for graduate study must be submitted through an applicant's online UW–Madison Graduate School application. Please limit this important document to 1,000 words.
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- *Transcripts:* One official transcript from each institution you have attended must be sent to the department directly. International academic records must be in the original language accompanied by an official English translation. Documents must be issued by the institution with the official seal/stamp and an official signature.
- *Graduate Record Examination (GRE) Scores:* Graduate Record Examination (GRE) General Test scores are required for all applicants.
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Students interested in pursuing the online M.Eng. degree must follow the steps to apply found on the program website (<https://epd.wisc.edu/online-degree/environmental-engineering/#/apply>).

## PEOPLE

**Faculty:** Professors Noyce (chair), Adams, Bahia, Cramer, Feigl, Hanna, Harrington, Holloway, Hurley, Karthikeyan, Lee, Likos, Long, Noguera, McMahon, Park, Parra-Montesinos, Pedersen, Potter, Ran, Russell, Schauer, Wu; Associate Professors Ahn, Fratta, Loheide II, Pincheira Tinjum; Assistant Professors Block, Ginder-Vogel, Hedegaard, Hicks, Remucal, Sone, Wright. See also CEE faculty (<http://directory.engr.wisc.edu/cee/faculty>).

**Geological Engineering Faculty:** Professors Likos (chair) (Civil and Environmental Engineering), Anderson (Geoscience), Bahr (Geoscience), Goodwin (Geoscience), Thurber (Geology and Geoscience), Tikoff (Geoscience), Tobin (Geoscience), Wang (Geoscience), Wu (Civil and Environmental Engineering), Feigl (Geoscience); Associate Professors Fratta (Civil and Environmental Engineering), Loheide (Civil and Environmental Engineering); Assistant Professors Cardiff (Geoscience), Tinjum (Engineering Professional Development) Ginder-vogel (Civil and Environmental Engineering), Sone (Civil and Environmental Engineering); Affiliate Professors Kung (Soil Science), Lowery (Soil Science), Plesha (Engineering Physics), Potter (Civil and Environmental Engineering). See also GLE faculty (<http://gle.wisc.edu/faculty-and-staff>).

## GEOLOGICAL ENGINEERING, DOCTORAL MINOR

Students from departments outside of the Geological Engineering Program in the Department of Civil and Environmental Engineering can receive a PhD minor in Geological Engineering. The requirements for an external minor in Geological Engineering are listed below. The minor must be approved by Geological Engineering faculty in the Department of Civil

and Environmental Engineering. The minor approval form is available at the Civil and Environmental Engineering office. Completed form can be returned to the Civil and Environmental Engineering office for review and approval.

## REQUIREMENTS

1. A minimum of 9 formal course credits (not independent study or research credits) taken in the Geological Engineering curriculum.
2. Courses must be numbered 300 or above in Geological Engineering.
3. One of the courses must be numbered 600 or above in Geological Engineering.
4. Only one of the courses may be cross listed in the student's major department and cannot be used to satisfy the student's major requirements.
5. No examinations are required other than those given in each course.

## PEOPLE

**Faculty:** Professors Noyce (chair), Adams, Bahia, Cramer, Feigl, Hanna, Harrington, Holloway, Hurley, Karthikeyan, Lee, Likos, Long, Noguera, McMahon, Park, Parra-Montesinos, Pedersen, Potter, Ran, Russell, Schauer, Wu; Associate Professors Ahn, Fratta, Loheide II, Pincheira Tinjum; Assistant Professors Block, Ginder-Vogel, Hedegaard, Hicks, Remucal, Sone, Wright. See also CEE faculty (<http://directory.engr.wisc.edu/cee/faculty>).

**Geological Engineering Faculty:** Professors Likos (chair) (Civil and Environmental Engineering), Anderson (Geoscience), Bahr (Geoscience), Goodwin (Geoscience), Thurber (Geology and Geoscience), Tikoff (Geoscience), Tobin (Geoscience), Wang (Geoscience), Wu (Civil and Environmental Engineering), Feigl (Geoscience); Associate Professors Fratta (Civil and Environmental Engineering), Loheide (Civil and Environmental Engineering); Assistant Professors Cardiff (Geoscience), Tinjum (Engineering Professional Development) Ginder-vogel (Civil and Environmental Engineering), Sone (Civil and Environmental Engineering); Affiliate Professors Kung (Soil Science), Lowery (Soil Science), Plesha (Engineering Physics), Potter (Civil and Environmental Engineering). See also GLE faculty (<http://gle.wisc.edu/faculty-and-staff>).

## GEOLOGICAL ENGINEERING, M.S.

The graduate program offers training leading to the master of science and the doctor of philosophy degrees in geological engineering. Geological engineering is a rapidly growing field of study which integrates the two disciplines of geology and engineering. Geological engineers help find the best ways to use the earth's resources for solving technical problems while protecting the environment. The need for graduate education in geological engineering has been brought about by modern developments and activities in science and industry which have an impact on earth materials including soil, rock, and water. The area of study combines research and application methodologies of geology and of several engineering disciplines to address engineering problems in which the geologic nature of a site or geologic processes constitute major design objectives or constraints.

Emphasis in the program is on development of the student's ability to originate and perform analytical, numerical, and/or laboratory analysis techniques to address new and challenging earth-related problems associated with modern land-use practices, earthen construction, mineral extraction, and environmental pollution control and remediation. The program is expected to be of interest to students in engineering (particularly mining, civil, environmental, and mechanical) and physical sciences (particularly geology, geophysics, and geography). Students select their research topics from such areas as geotechnical and geo-environmental engineering, applied geophysics, hydrology and hydrogeology, numerical modeling of rock masses, remote sensing, rock mechanics, and rock engineering.

Modern facilities include rock physics and rock mechanics laboratories; drilling rig and instrumentation for rock and soil mechanics field testing; and soils, geosynthetics, and geo-environmental laboratories. Research assistantships, teaching assistantships, and fellowships are available to qualified applicants either upon admission or one to two semesters after entering the program.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.S.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Up to 7 credits numbered 300 or above can be counted toward the minimum graduate degree credit requirement; if those 7 credits are from courses numbered 700 or above, they may be counted toward the minimum graduate coursework (50%) requirement. No credits can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW-Madison Special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement; if those credits are from courses numbered 700 or above, they may be counted toward the minimum graduate coursework (50%) requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00

#### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

#### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

#### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission to the program requires approval of the admissions committee. Applicants are normally expected to have a bachelor's degree in engineering or the physical sciences.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

## PROFESSIONAL CONDUCT

- recognize and apply principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Noyce (chair), Adams, Bahia, Cramer, Feigl, Hanna, Harrington, Holloway, Hurley, Karthikeyan, Lee, Likos, Long, Noguera, McMahon, Park, Parra-Montesinos, Pedersen, Potter, Ran, Russell, Schauer, Wu; Associate Professors Ahn, Fratta, Loheide II, Pincheira Tinjum; Assistant Professors Block, Ginder-Vogel, Hedegaard, Hicks, Remucal, Sone, Wright. See also CEE faculty (<http://directory.engr.wisc.edu/cee/faculty>).

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## GEOLOGICAL ENGINEERING, PH.D.

The graduate program offers training leading to the master of science and the doctor of philosophy degrees in geological engineering. Geological engineering is a rapidly growing field of study which integrates the two disciplines of geology and engineering. Geological engineers help find the best ways to use the earth's resources for solving technical problems while protecting the environment. The need for graduate education in geological engineering has been brought about by modern developments and activities in science and industry which have an impact on earth materials including soil, rock, and water. The area of study combines research and application methodologies of geology and of several engineering disciplines to address engineering problems in which the geologic nature of a site or geologic processes constitute major design objectives or constraints.

Emphasis in the program is on development of the student's ability to originate and perform analytical, numerical, and/or laboratory analysis techniques to address new and challenging earth-related problems associated with modern land-use practices, earthen construction, mineral extraction, and environmental pollution control and remediation. The program is expected to be of interest to students in engineering (particularly mining, civil, environmental, and mechanical) and physical sciences (particularly geology, geophysics, and geography). Students select their research topics from such areas as geotechnical and geo-environmental engineering, applied geophysics, hydrology and hydrogeology, numerical modeling of rock masses, remote sensing, rock mechanics, and rock engineering.

Modern facilities include rock physics and rock mechanics laboratories; drilling rig and instrumentation for rock and soil mechanics field testing; and soils, geosynthetics, and geo-environmental laboratories. Research assistantships, teaching assistantships, and fellowships are available to qualified applicants either upon admission or one to two semesters after entering the program.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

## DOCTORAL DEGREES

Ph.D.

## MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Up to 7 credits numbered 300 or above can be counted toward the minimum graduate degree credit requirement; if those 7 credits are from courses numbered 700 or above, they may be counted toward the minimum graduate coursework (50%) requirement. No credits can be counted toward the minimum graduate residence credit requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW-Madison Special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement; if those credits are from courses numbered 700 or above, they may be counted toward the minimum graduate coursework (50%) requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students in Geological Engineering are not required to complete a minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher

grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission to the program requires approval of the admissions committee. Applicants are normally expected to have a bachelor's degree in engineering or the physical sciences.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- demonstrate an ability to synthesize knowledge from a subset of the biological, physical, and social sciences to help frame problems critical to the future of their discipline.
- conduct original research.

- demonstrate an ability to create new knowledge and communicate it to their peers.

## PROFESSIONAL CONDUCT

- fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Noyce (chair), Adams, Bahia, Cramer, Feigl, Hanna, Harrington, Holloway, Hurley, Karthikeyan, Lee, Likos, Long, Noguera, McMahon, Park, Parra-Montesinos, Pedersen, Potter, Ran, Russell, Schauer, Wu; Associate Professors Ahn, Fratta, Loheide II, Pincheira Tinjum; Assistant Professors Block, Ginder-Vogel, Hedegaard, Hicks, Remucal, Sone, Wright. See also CEE faculty (<http://directory.engr.wisc.edu/cee/faculty>).

**Geological Engineering Faculty:** Professors Likos (chair) (Civil and Environmental Engineering), Anderson (Geoscience), Bahr (Geoscience), Goodwin (Geoscience), Thurber (Geology and Geoscience), Tikoff (Geoscience), Tobin (Geoscience), Wang (Geoscience), Wu (Civil and Environmental Engineering), Feigl (Geoscience); Associate Professors Fratta (Civil and Environmental Engineering), Loheide (Civil and Environmental Engineering); Assistant Professors Cardiff (Geoscience), Tinjum (Engineering Professional Development) Ginder-vogel (Civil and Environmental Engineering), Sone (Civil and Environmental Engineering); Affiliate Professors Kung (Soil Science), Lowery (Soil Science), Plesha (Engineering Physics), Potter (Civil and Environmental Engineering). See also GLE faculty (<http://gle.wisc.edu/faculty-and-staff>).

# CLASSICAL AND ANCIENT NEAR EASTERN STUDIES

**Administrative Unit:** Classical and Ancient Near Eastern Studies

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A., Ph.D.

**Minors and Certificates:** Doctoral Minors in Classics, Greek, Hebrew Bible, and in Latin

**Named Options:** Classics (M.A./Ph.D.), Hebrew Bible (M.A./Ph.D.)

Soon after the founding of the University of Wisconsin in 1848, the department was created as one of the first academic units at the university. The Department of Classical and Ancient Near Eastern Studies (CANES) has enjoyed a long tradition of excellence in philological scholarship, literary criticism, archaeology, and ancient history. At the graduate level, the department offers the master of arts and doctor of philosophy in classical and ancient near eastern studies. Students may follow one of two courses of study, classical languages and literatures, or Hebrew bible.

The primary goal of the program is to familiarize students with the core linguistic, historical, and philological aspects of classical and ancient near eastern studies. Students also learn to conduct original research in such varied areas as gender studies, literary theory, translation studies, and classical reception under the guidance of established scholars in these areas.

In addition to specified coursework, students participate in directed readings with individual faculty members in their areas of specialization and gain valuable professional experience teaching in courses on the languages, literature, and culture of the ancient world. Additional work may be done in allied fields such as archaeology, art history, linguistics, comparative literature, history, philosophy, and political science. Affiliated faculty in many of these fields regularly offer courses, supervise theses and dissertations, and participate in department activities.

A wide range of professional networks provides graduate students with enhanced opportunities for education and career development. In addition to faculty connections to scholars and institutions in their fields of study, the department has formal affiliations with the Society for Classical Studies, the Classical Association of the Middle West and South, the American School of Classical Studies in Athens, the Society of Biblical Literature, and the American Schools of Oriental Research.

The Pillinger Library and Mansoor Reading Room, both located within the department, provide convenient access to a large number of texts, while the larger Greek and Latin Reading Room in the Memorial Library contains an extensive, noncirculating research collection of texts and commentaries. The Memorial Library maintains an excellent research collection of books and periodicals in classics and Hebrew bible, with many of its resources available online.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Classical and Ancient Near Eastern Studies, M.A. (p. 175)
- Classical and Ancient Near Eastern Studies, Ph.D. (p. 177)

- Classics, Doctoral Minor (p. 180)
- Greek, Doctoral Minor (p. 180)
- Hebrew Bible, Doctoral Minor (p. 180)
- Latin, Doctoral Minor (p. 180)

## PEOPLE

**Faculty in Classics:** Professors Aylward, McClure, McKeown, Vanden Heuval; Associate Professor Beneker (department chair); Assistant Professors Brockliss, Dressler, Nelsestuen, Pandey.

**Faculty in Hebrew Bible:** Professor Troxel; Associate Professor Hutton

**CANES Affiliate Faculty:** Professors Cahill (Art History), Gottlieb (Philosophy), Kleijwegt (History), Neville (History); Associate Professor Kapust (Political Science); Assistant Professors Fletcher (Philosophy), Taylor (History)

## CLASSICAL AND ANCIENT NEAR EASTERN STUDIES, M.A.

Soon after the founding of the University of Wisconsin in 1848, the department was created as one of the first academic units at the university. The Department of Classical and Ancient Near Eastern Studies (CANES) has enjoyed a long tradition of excellence in philological scholarship, literary criticism, archaeology, and ancient history. At the graduate level, the department offers the master of arts and doctor of philosophy in classical and ancient near eastern studies. Students may follow one of two courses of study, classical languages and literatures, or Hebrew bible.

The primary goal of the program is to familiarize students with the core linguistic, historical, and philological aspects of classical and ancient near eastern studies. Students also learn to conduct original research in such varied areas as gender studies, literary theory, translation studies, and classical reception under the guidance of established scholars in these areas.

In addition to specified coursework, students participate in directed readings with individual faculty members in their areas of specialization and gain valuable professional experience teaching in courses on the languages, literature, and culture of the ancient world. Additional work may be done in allied fields such as archaeology, art history, linguistics, comparative literature, history, philosophy, and political science. Affiliated faculty in many of these fields regularly offer courses, supervise theses and dissertations, and participate in department activities.

A wide range of professional networks provides graduate students with enhanced opportunities for education and career development. In addition to faculty connections to scholars and institutions in their fields of study, the department has formal affiliations with the Society for Classical Studies, the Classical Association of the Middle West and South, the American School of Classical Studies in Athens, the Society of Biblical Literature, and the American Schools of Oriental Research.

The Pillinger Library and Mansoor Reading Room, both located within the department, provide convenient access to a large number of texts, while the larger Greek and Latin Reading Room in the Memorial Library contains an extensive, noncirculating research collection of texts and commentaries. The Memorial Library maintains an excellent research

collection of books and periodicals in classics and Hebrew bible, with many of its resources available online.

## FUNDING

The department annually offers graduate fellowship support and teaching assistantships. In order for incoming students to be considered for fellowships, applications and all other materials should reach the department by January 5.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., with available named option in Classics, and Hebrew Bible

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

M.A. named option in Classics: 36 credits

M.A. named option in Hebrew Bible: 32 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

M.A. named option in Classics: 18 credits

M.A. named option in Hebrew Bible: 16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

MA named option in Classics: 24 credits out of 36 total credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>). Of those 24 credits, at least 9 credits must come from each language.

MA named option in Hebrew Bible: 24 credits out of 36 total credits must be completed in graduate-level language courses within the department; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate course work from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of course work numbered 300 or above taken as a UW–Madison University Special students. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements. UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

M.A. named option in Classics: One graduate seminar (3 credits, numbered 700 or above) in Classics, Greek, or Latin is required and may count towards the 9 credits required in each language.

M.A. named option in Hebrew Bible:

1. Language courses (Aramaic, Ugaritic and Canaanite, or Syriac) are taught in two-semester sequences. One sequence (6 credits) is required for the M.A.
2. Text courses (Pentateuch, Isaiah, and Psalms and Wisdom) are taught in two-semester sequences. Two sequences (12 credits) are required for the M.A.
3. 3 credits in one of the following courses: Classical Hebrew Linguistics, Biblical Archaeology, or Rabbinic Texts.
4. 6 credits in two seminars, at least one of which must be the CANES advanced seminar in theory and method.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with the graduate advisor. Candidates for the M.A. should form a provisional thesis committee no later than the first week of the semester in which they plan to graduate. The committee should consist of a main advisor and two other faculty members. Candidates should meet with their thesis



committee members by the end of the first month in the semester in which they plan to graduate in order to discuss the viability of the thesis.

## ASSESSMENTS AND EXAMINATIONS

**M.A. named option in Classics:** For the M.A. thesis, the candidate presents to the committee a paper, typically of 25–35 double-spaced pages, written under the supervision of the committee. The candidate then takes an oral examination of the thesis set by the committee.

**M.A. named option in Hebrew Bible:** M.A. exams are based on coursework and the M.A. Reading List. The exams are given at the end of the final semester of study for the degree. An exam can be taken no more than twice. M.A. candidates intending to advance to the Ph.D. program will take only the exam in proficiency in Hebrew. Those pursuing a terminal M.A. will also take the General Exam and the Oral Exam.

## TIME CONSTRAINTS

The thesis, written in consultation with the major professor, must be completed no later than two semesters after thesis work begins.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

The student must pass a sight-reading proficiency examination in either Latin or Greek. An examination in German, French, or Italian must also be passed before the M.A.

## ADMISSIONS

Applicants for graduate study may enter the program with either a B.A. or master's (M.A., M.Div., Th.M.) degree. For the classics named option, candidates are expected to have covered at least the equivalent of an undergraduate major in classics, which consists of at least three years of both Greek and Latin. For the named option in Hebrew bible, candidates are expected to have taken at least two years of biblical Hebrew and one year of Greek.

Candidates whose preparation falls short of the minimum requirements may be admitted with deficiencies at the discretion of the department, but will be required to do additional work within the first year of the program. Applications are evaluated on the basis of previous academic record, Graduate Record Exam (GRE) scores, letters of recommendation, the writing sample, and a personal statement.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, and applies the philological and theoretical approaches established in the field of Classics or Hebrew Bible.
- Identifies appropriate sources and assembles evidence relevant to questions and challenges in Classics or Hebrew Bible.
- Demonstrates understanding of Classical or Hebrew Bible literature in a historical and social context.
- Selects and utilizes the most appropriate methodologies and practices.

- Evaluates and synthesizes information pertaining to questions and challenges.
- Communicates complex ideas in a clear and understandable manner.

## PROFESSIONAL CONDUCT

- Recognizes and applied principles of ethical and professional conduct.

## PEOPLE

**Faculty in Classics:** Professors Aylward, McClure, McKeown, Vanden Heuval; Associate Professor Beneker (department chair); Assistant Professors Brockliss, Dressler, Nelsestuen, Pandey.

**Faculty in Hebrew Bible:** Professor Troxel; Associate Professor Hutton

**CANES Affiliate Faculty:** Professors Cahill (Art History), Gottlieb (Philosophy), Kleijwegt (History), Neville (History); Associate Professor Kapust (Political Science); Assistant Professors Fletcher (Philosophy), Taylor (History)

## CLASSICAL AND ANCIENT NEAR EASTERN STUDIES, PH.D.

Soon after the founding of the University of Wisconsin in 1848, the department was created as one of the first academic units at the university. The Department of Classical and Ancient Near Eastern Studies (CANES) has enjoyed a long tradition of excellence in philological scholarship, literary criticism, archaeology, and ancient history. At the graduate level, the department offers the master of arts and doctor of philosophy in classical and ancient near eastern studies. Students may follow one of two courses of study, classical languages and literatures, or Hebrew bible.

The primary goal of the program is to familiarize students with the core linguistic, historical, and philological aspects of classical and ancient near eastern studies. Students also learn to conduct original research in such varied areas as gender studies, literary theory, translation studies, and classical reception under the guidance of established scholars in these areas.

In addition to specified coursework, students participate in directed readings with individual faculty members in their areas of specialization and gain valuable professional experience teaching in courses on the languages, literature, and culture of the ancient world. Additional work may be done in allied fields such as archaeology, art history, linguistics, comparative literature, history, philosophy, and political science. Affiliated faculty in many of these fields regularly offer courses, supervise theses and dissertations, and participate in department activities.

A wide range of professional networks provides graduate students with enhanced opportunities for education and career development. In addition to faculty connections to scholars and institutions in their fields of study, the department has formal affiliations with the Society for Classical Studies, the Classical Association of the Middle West and South, the American School of Classical Studies in Athens, the Society of Biblical Literature, and the American Schools of Oriental Research.

The Pillinger Library and Mansoor Reading Room, both located within the department, provide convenient access to a large number of texts,

while the larger Greek and Latin Reading Room in the Memorial Library contains an extensive, noncirculating research collection of texts and commentaries. The Memorial Library maintains an excellent research collection of books and periodicals in classics and Hebrew bible, with many of its resources available online.

## FUNDING

The department annually offers graduate fellowship support and teaching assistantships. In order for incoming students to be considered for fellowships, applications and all other materials should reach the department by January 5.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D., with available named options in Classics, and Hebrew Bible

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

Ph.D. named option in Classics: 72 credits

Ph.D. named option in Hebrew Bible: 68 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

Ph.D. named option in Classics: 36 credits

Ph.D. named option in Hebrew Bible: 36 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Ph.D. named option in Classics: In addition to requirements for the M.A., 36 credits out of 72 total credits must be completed in a combination of graduate seminars and departmental courses specifically designed for graduate students. Courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

Ph.D. named option in Hebrew Bible: In addition to requirements for the M.A., 51 credits out of 68 total credits must be completed in a combination of graduate seminars and departmental courses specifically designed for graduate students. Courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate course work from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

Prior Coursework Requirement: UW–Madison University Special

With program approval, students are allowed to count no more than 9 credits of course work numbered 300 or above taken as a UW–Madison University Special students. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements. UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Ph.D. named option in Classics:

1. At least five graduate seminars (numbered 700 or higher, 15 credits) are required. This can include one graduate seminar previously taken for the M.A. requirement. Of the five graduate seminars specifically designed for graduate students, four must be in classics, Greek, and Latin courses within the department (at least one in each language), and one in Ancient Greek or Roman history through the history department or cross-listed with classics.
2. One graduate course in Greek prose composition (500 level with graduate students assessed separately from undergraduates), and one graduate course in Latin prose composition (500 level with graduate students assessed separately from undergraduates) (6 credits) are required.
3. One graduate course (700 level or above) in either Greek or Roman art and archaeology (3 credits) is required.
4. One CANES advanced seminar in theory and method (3 credits) is required.
5. The remainder of the minimum credits must be completed in graduate-level language and literature courses within the department at 500 level (this course range in classics does assess graduate students separately from undergraduates) or above (these courses in classics are specifically designed for graduate students), or in graduate seminars (700 level or above).

Ph.D. named option in Hebrew Bible:

1. One additional two-semester Language sequence (Aramaic, Ugaritic and Canaanite, or Syriac) (6 credits).
2. One additional two-semester Text sequence (Pentateuch, Isaiah, and Psalms and Wisdom) (6 credits).
3. 6 credits of Greek at the Intermediate Level (300 level) or higher. Other languages may be taken with prior approval of the Director of Graduate Studies.
4. 3 credits in whichever of Classical Hebrew Linguistics, Biblical Archaeology, or Rabbinic Texts was not taken for the M.A.
5. 6 credits in two seminars.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor. Students may not complete a minor with the same name as their named option. Students

are expected to consult with their advisors concerning minor/breadth requirements.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with the graduate advisor.

Candidates for the Ph.D. should form a provisional dissertation committee, consisting of a Dissertation Advisor and at least two additional faculty advisors from within the department, the semester before they reach dissertator status

## ASSESSMENTS AND EXAMINATIONS

Ph.D. named option in Classics: The student must pass the ancient history examination as well as all language requirements below before beginning work on preliminary exams. Four preliminary examinations are required before the dissertation: Greek literature, Latin literature, Greek author chosen by the student, and Latin author chosen by the student.

Ph.D. named option in Hebrew Bible: The student must pass the Ph.D. course requirements and the other foreign language reading requirements before beginning work on preliminary exams. Four preliminary examinations are required before the dissertation: Proficiency in Hebrew, Proficiency in Northwest Semitic languages, General Exam based on the reading list, and Special Field Exam.

Both Options: After successful completion of the preliminary exams, students form a provisional dissertation committee, consisting of a dissertation advisor and at least two additional faculty advisors from within the department. Students are required to defend a dissertation proposal before the provisional committee, write the dissertation, and pass a two-hour oral examination on the dissertation given by a full five member dissertation committee.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within 5 years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

The student must pass a sight-reading proficiency examination in Latin, Greek, and German. A sight-reading proficiency examination in French or Italian must also be passed before beginning work on the dissertation. Exams from the M.A. may be counted toward this requirement.

## ADMISSIONS

Applicants for graduate study may enter the program with either a B.A. or master's (M.A., M.Div., Th.M.) degree. For the classics named option, candidates are expected to have covered at least the equivalent of an undergraduate major in classics, which consists of at least three years of both Greek and Latin. For the named option in Hebrew bible, candidates are expected to have taken at least two years of biblical Hebrew and one year of Greek.

Candidates whose preparation falls short of the minimum requirements may be admitted with deficiencies at the discretion of the department, but will be required to do additional work within the first year of the program. Applications are evaluated on the basis of previous academic record, Graduate Record Exam (GRE) scores, letters of recommendation, the writing sample, and a personal statement.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice in the field of Classics or Hebrew Bible.
- Formulates ideas, concepts, and approaches beyond the current boundaries of knowledge within Classics or Hebrew Bible.
- Creates research and scholarship that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of Classics or Hebrew Bible to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty in Classics:** Professors Aylward, McClure, McKeown, Vanden Heuval; Associate Professor Beneker (department chair); Assistant Professors Brockliss, Dressler, Nelsestuen, Pandey.

**Faculty in Hebrew Bible:** Professor Troxel; Associate Professor Hutton

**CANES Affiliate Faculty:** Professors Cahill (Art History), Gottlieb (Philosophy), Kleijwegt (History), Neville (History); Associate Professor Kapust (Political Science); Assistant Professors Fletcher (Philosophy), Taylor (History)

**CLASSICS, DOCTORAL MINOR**

**GREEK, DOCTORAL MINOR**

**HEBREW BIBLE, DOCTORAL MINOR**

**LATIN, DOCTORAL MINOR**

## COMMUNICATION ARTS

**Administrative Unit:** Communication Arts

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A., Ph.D.

**Minors and Certificates:** Doctoral Minor

**Specializations:** Communication Science, Film, Media and Cultural Studies, Rhetoric Politics and Culture

Students may pursue the master of arts and the doctor of philosophy degrees in communication arts in one of the four areas of study: communication science, film, media and cultural studies, or rhetoric, politics, and culture (see descriptions below). Although terminal M.A. degrees may occasionally be awarded, the programs are designed primarily to meet the needs of Ph.D. candidates. The department anticipates that most students will accept positions as academics at the college and university level. To that end, the department seeks to train productive researchers, committed teachers, and engaged public intellectuals who recognize a responsibility to participate actively in the world beyond the university.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Communication Arts, Doctoral Minor (p. 181)
- Communication Arts, M.A. (p. 181)
- Communication Arts, Ph.D. (p. 183)

### PEOPLE

**Faculty:** Professors Xenos (chair), Asen, Conway, Gray, Howard, Jacobs, Lucas, Mares, Murphy, Pan, Smith, Van Swol, Zaeske; Associate Professors Hoyt, D. Johnson, J. Johnson, Lopez, McKinnon, Morris, Singer, Toma; Assistant Professor Belodubrovskaya

## COMMUNICATION ARTS, DOCTORAL MINOR

### REQUIREMENTS

Graduate students from other departments may pursue a doctoral minor in communication arts with study in any one of the four communication arts areas. Requirements are set in consultation with a department advisor. Contact the graduate coordinator for more information.

### PEOPLE

**Faculty:** Professors Xenos (chair), Asen, Conway, Gray, Howard, Jacobs, Lucas, Mares, Murphy, Pan, Smith, Van Swol, Zaeske; Associate Professors Hoyt, D. Johnson, J. Johnson, Lopez, McKinnon, Morris, Singer, Toma; Assistant Professor Belodubrovskaya

## COMMUNICATION ARTS, M.A.

Specific requirements for the master's degree vary among the four areas. Prospective graduate students should consult the department website (<http://www.commarts.wisc.edu/graduate>) for specific information on degree requirements in each area.

## COMMUNICATION SCIENCE

Communication science is concerned with how people interact with one another in various means, modes, and contexts. It involves social scientific exploration utilizing both quantitative and qualitative methods. Reflecting the multi-faceted nature of the subject matter and a cross-disciplinary orientation of the field, students in communication science typically complete course work both in the department and in other social science fields. Graduate study in communication science is flexible and tailored to the individual. With a low faculty to student ratio and close collaboration with related academic units on campus, students have high access to faculty and with it, opportunities to work closely with faculty on research and broaden their horizon. Students are expected to develop fluency in at least two of the following areas:

- *Social influence* that focuses interpersonal interactions, both online and offline, as well as group and organizational dynamics. It examines information exchange, persuasion, and other influence processes in various social contexts.
- *Computer-mediated communication* that examines individuals' uses of the media with digital, interactive, and networking features, as well as the effects of such usage on self, relationships, group dynamics, and other social processes.
- *Human development and communication* that addresses communication in relation to life cycle, focusing in particular on life cycle patterns in the means and modes of communication, as well as the effects of communicative engagement and media usage of youths and aging.
- *Political communication* that focuses on patterns and effects of communication, both face-to-face and mediated, on the democratic process. In particular it concerns how communication shapes the public sphere, how public deliberation over political issues takes place, and how the media may be related to civic and political engagement.

Students in communication science are expected to master two of the four areas.

## FILM

The study of film concentrates primarily on motion picture history, theory, and criticism, approached through intensive critical analysis of individual films; research into the primary documents of filmmakers and the film industry; and the construction of theoretical models of films forms and styles, national cinemas, film genres, and the economics of the film industry. The program believes in the connection between film studies and film practice. Courses in film production enhance our understanding of motion picture history, theory, and criticism by revealing the practical decisions filmmakers confront.

## MEDIA AND CULTURAL STUDIES

The media and cultural studies (MCS) program emphasizes the study of media in their historical, economic, social, and political context. MCS courses examine the cultural forms created and disseminated by

media industries and the ways in which they resonate in everyday life, on the individual, national, and global level. Focusing primarily on sound and screen media—television, new media, film, popular music, radio, video games—but reaching out across boundaries, MCS encourages interdisciplinary and transmedia research. MCS courses draw on a broad range of cultural theories spanning a spectrum of concerns all centrally relevant to the functioning of sound and screen media in a diverse and globalizing cultural environment.

## RHETORIC, POLITICS, AND CULTURE

Whether speaking from the podium or chatting on Facebook, people use discourse to craft identities, enact social change, and form a shared sense of community. Seeking to better understand this social force, the study of discourse explores significant themes, trajectories, and transformations in politics and society while considering particular individuals and groups, cultures, eras, genres, and topics. Courses in this area explore issues of power, digital media, citizenship, gender, sexuality, race, ethnicity, globalization, religion, inclusion and exclusion, social status, and marginalization.

Graduate work in rhetoric focuses on three interrelated areas: discourse, theory, and method. All three areas of study in rhetoric, politics, and culture are united by a common commitment to understanding the role of discourse in society as we act together to engage in culture and politics. Students are encouraged to investigate a wide range of discursive phenomena as they develop expertise that will empower them to conduct significant research and to take an active role in scholarly communities.

## FUNDING

The principal types of graduate student financial aid are teaching, research, and project assistantships. Most communication arts graduate students are supported by teaching assistantships and thus a high level of competency in written and spoken English is required. A limited number of fellowships are available. All students are considered for assistantships and fellowships at the time of application. No separate application is necessary.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be received in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a Master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits of graduate coursework taken as a UW-Madison undergraduate student. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of graduate coursework taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

10-credit maximum unless additional credits are approved by faculty advisor, up to 15

### PROGRAM-SPECIFIC COURSES REQUIRED

Varies by area of study.

### OVERALL GRADUATE GPA REQUIREMENT

3.75 average required of all coursework taken within the department.

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

All graduate students must stay "in good standing" in the department to be eligible for teaching assignments, awards, and fellowships, and in order to be considered to be making satisfactory progress in the program. Students whose progress is rated unsatisfactory by their faculty may face loss of funding and/or dismissal from the program.

The department's minimum criteria for good standing are:

1. Timely progress through the program, consisting of successful completion of M.A. and Ph.D. requirements and compliance with coursework, advising, and dissertation expectations.

2. A cumulative grade point average for coursework within the department of 3.75 or above.
3. No grades of Incomplete on the student's record.
4. Fulfillment of responsibilities for teaching/project assistantships or lectureships.

## ADVISOR / COMMITTEE

All students are assigned an advisor when they enter the program, but may switch advisors if appropriate for their studies. While no faculty member is obliged to accept a student's request to serve as advisor, invitations are usually accepted except where the faculty member judges that a different advisor would serve the student's needs and interests better.

It is the student's responsibility to meet with the advisor on a regular basis (at least once a semester), to consult with him/her on selection of courses, and to receive feedback on progress through the program, including dissertator stage. Dissertators living outside of Madison must make sure that an acceptable substitute for such a meeting is agreed upon with the advisor. Failure to comply with these requirements may result in an *unsatisfactory* grade in Research and Thesis, and could lead to dismissal from the program.

All students are required to complete a Professional Activities Report (PAR) each Spring.

## ASSESSMENTS AND EXAMINATIONS

Communication Science and Rhetoric, Politics, and Culture generally require a formal thesis; Film and Media and Cultural Studies require comprehensive examinations.

## TIME CONSTRAINTS

Master's degrees are generally expected to be completed within five semesters of matriculation.

## LANGUAGE REQUIREMENTS

Students interested in writing a dissertation on a national cinema other than the U.S. are expected to complete two years of foreign language study.

## ADMISSIONS

Applicants must have earned a bachelor's degree from an accredited institution with a minimum overall grade point average of 3.0 on a 4.0 scale, although successful applicants usually have much higher GPAs. Students whose preparation does not meet the requirements of the area of study to which they have been admitted may be required to enroll in specific courses to remedy deficiencies.

Applicants must submit two official copies of transcripts from all institutions attended, three letters of recommendation from academic sources, official Graduate Record Examination (GRE) scores, official TOEFL or IELTS scores for international students whose native language is not English, a statement of purpose for graduate study, and a 15- to 20-page writing sample (in English). Although the department requires no minimum GRE scores, successful candidates typically score well on portions of the examination related to their area of study. Admission to the graduate program in communication arts is highly competitive.

The application deadline is December 15.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Xenos (chair), Asen, Conway, Gray, Howard, Jacobs, Lucas, Mares, Murphy, Pan, Smith, Van Swol, Zaeske; Associate Professors Hoyt, D. Johnson, J. Johnson, Lopez, McKinnon, Morris, Singer, Toma; Assistant Professor Belodubrovskaya

## COMMUNICATION ARTS, PH.D.

Specific requirements for the doctoral degree vary among the four graduate programs. Prospective graduate students should consult the department website (<http://www.commarts.wisc.edu/graduate>) for information on degree requirements in each of the four areas. A four-course doctoral minor is required, which allows graduate students to integrate study in such overlapping fields as history, ethnic studies, gender studies, sociology, and global studies, or from other areas within the communication arts department.

### COMMUNICATION SCIENCE

Communication science is concerned with how people interact with one another in various means, modes, and contexts. It involves social scientific exploration utilizing both quantitative and qualitative methods. Reflecting the multi-faceted nature of the subject matter and a cross-disciplinary orientation of the field, students in communication science typically complete course work both in the department and in other social science fields. Graduate study in communication science is flexible and tailored to the individual. With a low faculty to student ratio and close collaboration with related academic units on campus, students have high access to faculty and with it, opportunities to work closely with faculty on research and broaden their horizon. Students are expected to develop fluency in at least two of the following areas:

- *Social influence* that focuses interpersonal interactions, both online and offline, as well as group and organizational dynamics. It examines information exchange, persuasion, and other influence processes in various social contexts.

- *Computer-mediated communication* that examines individuals' uses of the media with digital, interactive, and networking features, as well as the effects of such usage on self, relationships, group dynamics, and other social processes.
- *Human development and communication* that addresses communication in relation to life cycle, focusing in particular on life cycle patterns in the means and modes of communication, as well as the effects of communicative engagement and media usage of youths and aging.
- *Political communication* that focuses on patterns and effects of communication, both face-to-face and mediated, on the democratic process. In particular it concerns how communication shapes the public sphere, how public deliberation over political issues takes place, and how the media may be related to civic and political engagement.

Students in communication science are expected to master two of the four areas.

## FILM

The study of film concentrates primarily on motion picture history, theory, and criticism, approached through intensive critical analysis of individual films; research into the primary documents of filmmakers and the film industry; and the construction of theoretical models of films forms and styles, national cinemas, film genres, and the economics of the film industry. The program believes in the connection between film studies and film practice. Courses in film production enhance our understanding of motion picture history, theory, and criticism by revealing the practical decisions filmmakers confront.

## MEDIA AND CULTURAL STUDIES

The media and cultural studies (MCS) program emphasizes the study of media in their historical, economic, social, and political context. MCS courses examine the cultural forms created and disseminated by media industries and the ways in which they resonate in everyday life, on the individual, national, and global level. Focusing primarily on sound and screen media—television, new media, film, popular music, radio, video games—but reaching out across boundaries, MCS encourages interdisciplinary and transmedia research. MCS courses draw on a broad range of cultural theories spanning a spectrum of concerns all centrally relevant to the functioning of sound and screen media in a diverse and globalizing cultural environment.

## RHETORIC, POLITICS, AND CULTURE

Whether speaking from the podium or chatting on Facebook, people use discourse to craft identities, enact social change, and form a shared sense of community. Seeking to better understand this social force, the study of discourse explores significant themes, trajectories, and transformations in politics and society while considering particular individuals and groups, cultures, eras, genres, and topics. Courses in this area explore issues of power, digital media, citizenship, gender, sexuality, race, ethnicity, globalization, religion, inclusion and exclusion, social status, and marginalization.

Graduate work in rhetoric focuses on three interrelated areas: discourse, theory, and method. All three areas of study in rhetoric, politics, and culture are united by a common commitment to understanding the role of discourse in society as we act together to engage in culture and politics. Students are encouraged to investigate a wide range of discursive phenomena as they develop expertise that will empower them to conduct significant research and to take an active role in scholarly communities.

## FUNDING

The principal types of graduate student financial aid are teaching, research, and project assistantships. Most communication arts graduate students are supported by teaching assistantships and thus a high level of competency in written and spoken English is required. A limited number of fellowships are available. All students are considered for assistantships and fellowships at the time of application. No separate application is necessary.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

40 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be received in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a Master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits of graduate coursework taken as a UW-Madison undergraduate student. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of graduate coursework taken as a UW-Madison special student. Coursework earned five or more years prior to admission to a master's



degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

10-credit maximum unless additional credits are approved by faculty advisor, up to 15

## PROGRAM-SPECIFIC COURSES REQUIRED

Varies by area of study.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.75 average required of all coursework taken within the department.

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

All graduate students must stay "in good standing" in the department to be eligible for teaching assignments, awards, and fellowships, and in order to be considered to be making satisfactory progress in the program. Students whose progress is rated unsatisfactory by their faculty may face loss of funding and/or dismissal from the program.

The department's minimum criteria for good standing are:

1. Timely progress through the program, consisting of successful completion of M.A. and Ph.D. requirements and compliance with coursework, advising, and dissertation expectations.
2. A cumulative grade point average for coursework within the department of 3.75 or above.
3. No grades of Incomplete on the student's record.
4. Fulfillment of responsibilities for teaching/project assistantships or lectureships.

## ADVISOR / COMMITTEE

All students are assigned an advisor when they enter the program, but may switch advisors if appropriate for their studies. While no faculty member is obliged to accept a student's request to serve as advisor, invitations are usually accepted except where the faculty member judges that a different advisor would serve the student's needs and interests better.

It is the student's responsibility to meet with the advisor on a regular basis (at least once a semester), to consult with him/her on selection of courses, and to receive feedback on progress through the program, including dissertator stage. Dissertators living outside of Madison must make sure that an acceptable substitute for such a meeting is agreed upon with the advisor. Failure to comply with these requirements may result in an *unsatisfactory* grade in Research and Thesis, and could lead to dismissal from the program.

All students are required to complete a Professional Activities Report (PAR) each Spring.

## ASSESSMENTS AND EXAMINATIONS

Students must successfully complete preliminary examinations before moving on to dissertator status.

Students must complete and defend a Ph.D. dissertation prospectus before writing the dissertation.

## TIME CONSTRAINT

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Students interested in writing a dissertation on a national cinema other than the U.S. are expected to complete two years of foreign language study.

## ADMISSIONS

Applicants must have earned a bachelor's degree from an accredited institution with a minimum overall grade point average of 3.0 on a 4.0 scale, although successful applicants usually have much higher GPAs. Students whose preparation does not meet the requirements of the area of study to which they have been admitted may be required to enroll in specific courses to remedy deficiencies.

Applicants must submit two official copies of transcripts from all institutions attended, three letters of recommendation from academic sources, official Graduate Record Examination (GRE) scores, official TOEFL or IELTS scores for international students whose native language is not English, a statement of purpose for graduate study, and a 15- to 20-page writing sample (in English). Although the department requires no minimum GRE scores, successful candidates typically score well on portions of the examination related to their area of study. Admission to the graduate program in communication arts is highly competitive.

The application deadline is December 15.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Xenos (chair), Asen, Conway, Gray, Howard, Jacobs, Lucas, Mares, Murphy, Pan, Smith, Van Swol, Zaeske; Associate Professors Hoyt, D. Johnson, J. Johnson, Lopez, McKinnon, Morris, Singer, Toma; Assistant Professor Belodubrovskaya

# COMMUNICATION SCIENCES AND DISORDERS

**Administrative Unit:** Communication Sciences and Disorders

**College/School:** College of Letters & Science

**Admitting Plans:** M.S., Ph.D., Au.D.

**Degrees Offered:** M.S., Ph.D., Au.D.

**Minors and Certificates:** Doctoral Minor

The department offers graduate programs leading to the M.S. and Ph.D. in communication sciences and disorders. An additional program in the department leads to the Au.D. in audiology. The graduate program provides the opportunity for study in the areas of audiology, speech–language pathology, hearing science, language science, and speech science. The purpose of the graduate program is to prepare clinicians, researchers, and teachers who possess a solid foundation in both the theoretical and applied aspects of the discipline of communication sciences and disorders.

The M.S. program is a two-year professional program designed to prepare students for clinical work. It is accredited by the Council on Academic Accreditation of the American Speech–Language–Hearing Association. At the master’s level, supervised diagnostic and therapy experiences with children and adults are provided in a variety of on- and off-campus clinical settings. This program meets the academic and clinical-practicum requirements for clinical certification set by the American Speech–Language–Hearing Association (ASHA). Opportunities are also available for pursuing a nonclinical program at the master’s level.

The Ph.D. program provides relevant classroom and laboratory experiences for the scholar–researcher interested in communication processes and communicative disorders. A student’s academic program will consist of course work within the department and in related areas such as psychology, linguistics, statistics, computer science, and education. Students completing the program will be prepared for careers as university professors, laboratory researchers, and senior clinicians.

Individual programs can be designed for students who wish to pursue professional training/clinical certification (in either speech–language pathology or audiology) and the Ph.D. degree. Such students follow a modified sequence of course work, clinical training, and research experience in order to satisfy all academic and certification requirements in five to six years.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Audiology, Au.D. (p. 187)
- Communication Sciences and Disorders, Doctoral Minor (p. 189)
- Communication Sciences and Disorders, M.S. (p. 189)
- Communication Sciences and Disorders, Ph.D. (p. 191)

## PEOPLE

**Faculty:** Professors Weismer (chair), Connors, Edwards, Ellis-Weismer, Fourakis, Fowler, Hustad, Litovsky, Lutfi, Turkstra; Associate Professors Kaushanskaya; Assistant Professors Ciucci, Sterling

## AUDIOLOGY, AU.D.

The Au.D. program is a four-year professional doctorate program offered jointly by the UW–Madison Department of Communication Sciences and Disorders and the UW–Stevens Point School of Communicative Disorders.

The program was designed to train professional audiologists through a firm foundation in science and technology. Clerkships and onsite mentoring assure that students graduate with superior clinical skills.

In this unique program, lecture classes are taught simultaneously at both campuses; videoconferencing allows for interaction with students and faculty at the remote campus. Laboratory experiences are taught separately, using the same curriculum, on each campus. Summer academic course work is entirely online, and clinical experiences take place both on and off campus.

The Au.D. program is accredited by the Council on Academic Accreditation in Audiology and Speech–Language Pathology (CAA) of the American Speech–Language–Hearing Association.

The academic objectives of the program are:

- To prepare students to enter the profession of audiology fully able to function as independent audiologists in private practice, medical clinics, and school settings.
- To provide a strong theoretical, technical, and scientific base for the clinical practice of audiology.
- To prepare students to meet certification and licensure requirements for the practice of clinical audiology.
- To prepare students to be lifelong learners.

## FUNDING

Financial assistance, sometimes available to graduate students in communication sciences and disorders, consists of scholarships, fellowships, traineeships, and project and research assistant positions. Financial assistance is very limited and varies from year to year. Students who are considering applying for financial aid should contact the department for further information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

**DOCTORAL DEGREES**

Au.D., with available named options Collaborative Program at UW–Madison, Collaborative Program at UW–Stevens Point

**MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT**

75 credits

**MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT**

75 credits

**MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT**

All (100%) of the minimum number of credits (75) must be taken in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

**PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

No prior coursework from other institutions is allowed.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

Up to 6 credits from a UW–Madison undergraduate degree are allowed to count toward the degree. If the courses are numbered 500 and above, the credits may be counted toward the overall graduate credit requirement; if the courses are numbered 700 or above, they may count toward both the minimum graduate degree requirements and minimum graduate coursework (50%) requirement.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

No prior coursework from UW–Madison University Special career is allowed.

**CREDITS PER TERM ALLOWED**

14 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

**DOCTORAL MINOR/BREADTH REQUIREMENTS**

Audiology doctoral students are not required to complete a doctoral minor, they may pursue a minor if they wish.

**OVERALL GRADUATE GPA REQUIREMENT**

3.00

**OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

**PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300

or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

**ADVISOR**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis. A committee often accomplishes advising for the students in the early stages of their studies.

**ASSESSMENT AND EXAMINATIONS**

Consult the program for specific requirements.

**TIME CONSTRAINTS**

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

Consult the program for additional program-specific time constraints.

**LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

**ADMISSIONS**

The program is open to individuals who have completed an undergraduate degree and who meet the minimum admission requirements of the Graduate School and the department. Entering students who do not have undergraduate majors in communicative disorders will typically be required to take prerequisite course work, which may lengthen the time required to earn a graduate degree.

**LEARNING OUTCOMES****KNOWLEDGE AND SKILLS****FOUNDATIONS OF PRACTICE**

- Students will possess knowledge of normal aspects of auditory physiology and behavior over the life span and normal development of speech and language.
- Students will demonstrate an understanding of the effects of hearing loss on communication and educational, vocational, social, and psychological functioning.
- Students will possess knowledge of pathologies related to hearing and balance and their medical diagnosis and treatment.
- Students will demonstrate clinically appropriate oral and written communication skills.
- Students will recognize principles and practices of research, including experimental design, statistical methods, and application to clinical populations.

## PREVENTION, IDENTIFICATION, AND ASSESSMENT

- Students will be able to screen individuals for hearing impairment and disability/handicap using clinically appropriate, culturally sensitive, and age- and site-specific screening measures.
- Students will demonstrate abilities to assess individuals with suspected disorders of hearing, communication, balance, and related systems
- Students will evaluate information from appropriate sources and obtaining a case history to facilitate assessment planning.
- Students will conduct and interpret behavioral and/or electrophysiologic methods to assess hearing thresholds, auditory neural function, balance and related systems.
- Students will prepare reports, including interpreting data, summarizing findings, generating recommendations, and developing an audiologic treatment/management plan.

## INTERVENTION

- Student will provide intervention services (treatment) to individuals with hearing loss, balance disorders, and other auditory dysfunction that compromises receptive and expressive communication.
- Students will develop culturally appropriate, audiologic rehabilitative management plans.
- Students will evaluate the efficacy of intervention (treatment) services.

## PROFESSIONAL CONDUCT

- Students will recognize and apply principles of ethical and professional conduct.
- Students will apply skills for life-long learning.
- Students will demonstrate teamwork and problem solving.
- Students will possess knowledge of contemporary professional issues and advocacy.
- Students will communicate effectively, recognizing the needs, values, preferred mode of communication, and cultural/linguistic background of the patient, family, caregiver, and relevant others.
- Students will provide counseling and supportive guidance regarding hearing and balance disorders to patients, family, caregivers, and relevant others.

## PEOPLE

**Faculty:** Professors Weismer (chair), Edwards, Ellis-Weismer, Fourakis, Fowler, Litvosky, Lutfi, Westbury; Associate Professors Connor, Hustad, Turkstra; Assistant Professors Ciucci, Kaushanskaya; Clinical Professors Rosin (clinic director), Kwiatkowski, Murray-Branch, Schraeder; Clinical Associate Professors Buhr-Lawler, Hartman, Longstreth, Quinn; Clinical Assistant Professors Cohen, Douglas

## COMMUNICATION SCIENCES AND DISORDERS, DOCTORAL MINOR

## COMMUNICATION SCIENCES AND DISORDERS, M.S.

The department offers graduate programs leading to the M.S. and Ph.D. in communication sciences and disorders. An additional program in the department leads to the Au.D. in audiology. The graduate program provides the opportunity for study in the areas of audiology, speech–language pathology, hearing science, language science, and speech science. The purpose of the graduate program is to prepare clinicians, researchers, and teachers who possess a solid foundation in both the theoretical and applied aspects of the discipline of communication sciences and disorders.

The M.S. program is a two-year professional program designed to prepare students for clinical work. It is accredited by the Council on Academic Accreditation of the American Speech–Language–Hearing Association. At the master’s level, supervised diagnostic and therapy experiences with children and adults are provided in a variety of on- and off-campus clinical settings. This program meets the academic and clinical-practicum requirements for clinical certification set by the American Speech–Language–Hearing Association (ASHA). Opportunities are also available for pursuing a nonclinical program at the master’s level.

## FUNDING

Financial assistance, sometimes available to graduate students in communication sciences and disorders, consists of scholarships, fellowships, traineeships, and project and research assistant positions. Financial assistance is very limited and varies from year to year. Students who are considering applying for financial aid should contact the department for further information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER’S DEGREES

M.S., with available tracks in speech–language pathology, and normal aspects of speech, language and hearing

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

M.S.–speech language pathology track: 36 credits

M.S.–normal aspects of speech, language and hearing: 30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

M.S.–speech language pathology track: 36 credits

M.S.–normal aspects of speech, language and hearing: 30 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

M.S.—speech language pathology track: All but 3 credits of the minimum 36 credits for the degree must be taken in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

M.S.—normal aspects of speech, language and hearing: All of the minimum number of credits (30) must be taken in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the University's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No prior coursework from other institutions is allowed.

## PRIOR COURSEWORK REQUIREMENTS: UW—MADISON UNDERGRADUATE

Up to 6 credits from a UW—Madison undergraduate degree are allowed to count toward the degree. If the courses are numbered 500 and above, the credits may be counted toward the overall graduate credit requirement; if the courses are numbered 700 or above, they may count toward both the minimum graduate degree requirement and minimum graduate coursework (50%) requirement.

## PRIOR COURSEWORK REQUIREMENTS: UW—MADISON UNIVERSITY SPECIAL

No prior coursework from UW—Madison University Special career is allowed.

## CREDITS PER TERM ALLOWED

14 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The program is open to individuals who have completed an undergraduate degree and who meet the minimum admission requirements of the Graduate School and the department. Entering students who do not have undergraduate majors in communicative disorders will typically be required to take prerequisite course work, which may lengthen the time require to earn a graduate degree.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### FOUNDATIONS OF PRACTICE

- Students will possess foundational knowledge about basic human communication and swallowing processes.
- Students will identify sources and assemble evidence pertaining to questions or challenges in communication sciences and disorders.
- Students will articulate and critique the theories, research methods, and approaches in speech-language pathology.
- Students will integrate research principles into evidence-based clinical practice.
- Students will apply research findings in the provision of patient care.
- Students will communicate complex ideas in a clear and understandable manner.

### PREVENTION, IDENTIFICATION AND ASSESSMENT

- Students will conduct screening and prevention procedures.
- Students will perform chart review and collect case history from patient interviews and/or relevant others.
- Students will select appropriate evaluation instruments/procedures.
- Students will administer and score diagnostic tests correctly.
- Students will adapt evaluation procedures to meet patient needs.
- Students will possess knowledge of etiologies and characteristics for each communication and swallowing disorder.

- Students will interpret and formulate diagnosis from test results, history, and other behavioral observations
- Students will make appropriate recommendations for intervention.
- Students will complete administrative functions and documentation necessary to support evaluation.
- Students will make appropriate recommendations for patient referrals.

## INTERVENTION

- Students will develop appropriate treatment plans with measurable and achievable goals.
- Students will collaborate with clients/patients and relevant others in the planning process.
- Students will implement treatment plans.
- Students will select and use appropriate materials/instrumentation.
- Students will sequence tasks to meet objectives.
- Students will provide appropriate introduction/explanation of tasks.
- Students will measure and evaluate patients' performance and progress.
- Students will use appropriate models, prompts, or cues.
- Students will adapt treatment session to meet individual patient needs.
- Students will complete administrative functions and documentation necessary to support treatment.
- Students will identify and refer patients for services as appropriate.

## PROFESSIONAL CONDUCT

- Students will recognize and apply principles of ethical and professional conduct.
- Students will apply skills for life-long learning.
- Students will apply intercultural knowledge and competence in their practice.
- Students will demonstrate teamwork and problem solving.
- Students will possess knowledge of contemporary professional issues and advocacy.
- Students will communicate effectively, recognizing the needs, values, preferred mode of communication, and cultural/linguistic background of the patient, family, caregiver, and relevant others.
- Students will provide counseling and supportive guidance regarding communication and swallowing disorders to patients, family, caregivers, and relevant others.

## PEOPLE

**Faculty:** Professors Weismer (chair), Connors, Edwards, Ellis-Weismer, Fourakis, Fowler, Hustad, Litovsky, Lutfi, Turkstra; Associate Professors Kaushanskaya; Assistant Professors Ciucci, Sterling

## COMMUNICATION SCIENCES AND DISORDERS, PH.D.

The department offers graduate programs leading to the M.S. and Ph.D. in communication sciences and disorders. An additional program in the department leads to the Au.D. in audiology. The graduate program provides the opportunity for study in the areas of audiology, speech-

language pathology, hearing science, language science, and speech science. The purpose of the graduate program is to prepare clinicians, researchers, and teachers who possess a solid foundation in both the theoretical and applied aspects of the discipline of communication sciences and disorders.

The Ph.D. program provides relevant classroom and laboratory experiences for the scholar-researcher interested in communication processes and communicative disorders. A student's academic program will consist of course work within the department and in related areas such as psychology, linguistics, statistics, computer science, and education. Students completing the program will be prepared for careers as university professors, laboratory researchers, and senior clinicians.

Individual programs can be designed for students who wish to pursue professional training/clinical certification (in either speech-language pathology or audiology) and the Ph.D. degree. Such students follow a modified sequence of course work, clinical training, and research experience in order to satisfy all academic and certification requirements in five to six years.

## FUNDING

Financial assistance, sometimes available to graduate students in communication sciences and disorders, consists of scholarships, fellowships, traineeships, and project and research assistant positions. Financial assistance is very limited and varies from year to year. Students who are considering applying for financial aid should contact the department for further information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

54 credits, post-M.S.

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

54 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 75% of the minimum number of credits (54) must be taken in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## **PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

With program approval, students are allowed to count coursework from other institutions. In no case will coursework be considered that was earned ten or more years prior to admission to the Ph.D.

## **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

With program approval, students are allowed to count up to 7 credits from coursework for a UW–Madison undergraduate degree. In no case will coursework be considered that was earned ten or more years prior to admission to the Ph.D.

## **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

No prior coursework taken as a UW–Madison University Special student is allowed.

## **CREDITS PER TERM ALLOWED**

13 credits

## **PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

## **DOCTORAL MINOR/BREADTH REQUIREMENTS**

Doctoral students must complete a doctoral minor.

## **OVERALL GRADUATE GPA REQUIREMENT**

3.00

## **OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## **PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## **ADVISOR**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## **ASSESSMENT AND EXAMINATIONS**

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## **TIME CONSTRAINTS**

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within 5 years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## **LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

## **ADMISSIONS**

The program is open to individuals who have completed an undergraduate degree and who meet the minimum admission requirements of the Graduate School and the department. Entering students who do not have undergraduate majors in communicative disorders will typically be required to take prerequisite coursework, which may lengthen the time required to earn a graduate degree.

## **LEARNING OUTCOMES**

### **KNOWLEDGE AND SKILLS**

#### **FOUNDATIONS OF RESEARCH**

- Students will possess foundational knowledge about the particular subject area of the chosen area, and be fully conversant with the classic and contemporary literature.
- Students will master data collection techniques specific to their chosen area of research.
- Students will be fully conversant with the theoretical issues and tensions within their chosen area of research.
- Students will gain high-level knowledge and expertise in the statistical analysis of research data and graphical approaches to exploration of data sets.
- Students will communicate complex ideas in a clear and understandable manner.

#### **DISSERTATION**

- Students will be able to design and execute an original experiment (or experiments) that clearly fills a gap in the existing literature and is worthy of publication(s) in peer-reviewed journals.
- Students will have the skill, experience, and knowledge base to defend the dissertation work to a committee of five faculty members.

### **PROFESSIONAL CONDUCT**

#### **SPECIFIC EXPERIENCES AND SKILLS**

- Students will design and conduct experiments.



- Students will formulate research questions that are based on sound analyses of existing literature, and that show evidence of logical argument.
- Students will understand how to examine data for patterns that are meaningful and patterns that reflect likely data collection errors
- Students will write research proposals and learn to develop carefully argued proposals and explanations.
- Students will make presentations of their research at national and international conferences.
- Students will be able to pass a summary exam (6 hours written, 2 hours oral) that admits them to candidacy for the PhD degree.

## PEOPLE

**Faculty:** Professors Weismer (chair), Connors, Edwards, Ellis-Weismer, Fourakis, Fowler, Hustad, Litovsky, Lutfi, Turkstra; Associate Professors Kaushanskaya; Assistant Professors Ciucci, Sterling

# COMMUNITY AND ENVIRONMENTAL SOCIOLOGY

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE PROFESSIONAL/CERTIFICATES

- Community and Environmental Sociology, Doctoral Minor (p. 194)

## COMMUNITY AND ENVIRONMENTAL SOCIOLOGY, DOCTORAL MINOR

The mission of the Department of Community and Environmental Sociology is to advance knowledge, teaching, and outreach concerning the relationships between human communities (where people live, work, and play) and their biophysical environment. Learning goals for a doctoral minor in community and environmental sociology are to:

1. understand how social science arguments are constructed and evaluated;
2. develop ability to assess data quality and understand whether data is appropriate to answer specific questions; and
3. learn general theories on basic social processes, especially those related to the relationships between society and the environment and the social organization of communities.

## REQUIREMENTS

An Option A minor in community and environmental sociology is composed of 9 credits of graduate-level coursework. Students may enroll in any graduate-only courses (i.e., those numbered 700–999). They may also enroll in any of the advanced graduate–undergraduate courses (i.e., those numbered 300–699) that are either specifically designed for graduate students or assess graduate students separately from undergrads. Such courses carry this designation in the Course Guide: **Graduate 50%: Y.** Maximum of 3 credits of independent study.

## ADMISSIONS

For more information about the minor, contact:

Gary Green  
Professor & Chair  
gpgreen@wisc.edu (gpgreen@wisc.edu)

# COMPARATIVE LITERATURE AND FOLKLORE STUDIES

**Administrative Unit:** Comparative Literature and Folklore Studies

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A., Ph.D.

**Minors and Certificates:** Doctoral Minor in Comparative Literature and Doctoral Minor in Folklore

**Named Options:** Comparative Literature (M.A./Ph.D.), Folklore Studies (M.A./Ph.D.)

Graduate study in the Department of Comparative Literature and Folklore Studies (CLFS) emphasizes the active research into and theorizing of the comparative, the literary, the folkloric, and the cultural in a global context. CLFS faculty and students investigate cultures within, across, and beyond linguistic, regional, and national boundaries. The comparative and pluri-lingual nature of CLFS at UW–Madison enables the careful and informed study of new and evolving theories and cultural methodologies as well as of prior, present, and emerging cultural and literary practices and phenomena.

CLFS students study problems and create public projects exploring culture, genre, literary and cultural movements, mode, performance, periodization, theory and criticism, tradition, translation, and transmission. They engage problems and questions concerning the interaction and shifting boundaries of 'elite' and 'folk' literatures and other forms of creative expression and their transformation in their interaction; folklore and literature with other arts or other disciplines; and the relationships between creative expression and economic, sociopolitical, traditional, and other historical structures and issues, including ideological and value formations.

In addition to professional research and communication in the academic fields of comparative literature and folklore studies, CLFS is committed to public humanities projects that place professional expertise in the service of communities and publics.

Graduate study leads to the M.A. and Ph.D. degrees in CLFS and must be in either a comparative literature named option or a folklore studies named option.

The department also offers doctoral minors in comparative literature and in folklore to interested Ph.D. candidates in other degree programs. At the beginning of study in the minor program, all students seeking a comparative literature or folklore doctoral minor should contact the CLFS director of graduate studies concerning coursework for the minor. Completion of the minor will be certified by either the director of graduate studies or the department chair.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Comparative Literature and Folklore Studies, M.A. (p. 195)
- Comparative Literature and Folklore Studies, Ph.D. (p. 197)
- Comparative Literature, Doctoral Minor (p. 199)
- Folklore, Doctoral Minor (p. 200)

## PEOPLE

**Faculty:** Professors Dharwadker, Gilmore (also Landscape Architecture), Layoun, Livorni (chair, also French and Italian), Rosenblum (also Jewish Studies); Associate Professors Livanos, Statkiewicz; Assistant Professors Fielder, Grunewald, Neyrat, Wells. **Affiliate Faculty:** Adler (German, Nordic, and Slavic), Casid (Art History), Garlough (also Gender and Women's Studies), Goodkin (French and Italian), Guyer (English), Kern (Asian Languages and Cultures), Longinovic (German, Nordic, and Slavic), Valentine (Linguistics); Associate Professors Kapust (Political Science); **International Affiliate Faculty:** Ramalho de Sousa Santos (University of Coimbra, Portugal). See *also* Faculty (<http://clfs.wisc.edu/people/faculty>) on the department website.

## COMPARATIVE LITERATURE AND FOLKLORE STUDIES, M.A.

Graduate study in the Department of Comparative Literature and Folklore Studies (CLFS) emphasizes the active research into and theorizing of the comparative, the literary, the folkloric, and the cultural in a global context. CLFS faculty and students investigate cultures within, across, and beyond linguistic, regional, and national boundaries. The comparative and pluri-lingual nature of CLFS at UW–Madison enables the careful and informed study of new and evolving theories and cultural methodologies as well as of prior, present, and emerging cultural and literary practices and phenomena.

CLFS students study problems and create public projects exploring culture, genre, literary and cultural movements, mode, performance, periodization, theory and criticism, tradition, translation, and transmission. They engage problems and questions concerning the interaction and shifting boundaries of 'elite' and 'folk' literatures and other forms of creative expression and their transformation in their interaction; folklore and literature with other arts or other disciplines; and the relationships between creative expression and economic, sociopolitical, traditional, and other historical structures and issues, including ideological and value formations.

In addition to professional research and communication in the academic fields of comparative literature and folklore studies, CLFS is committed to public humanities projects that place professional expertise in the service of communities and publics.

Graduate study leads to the M.A. and Ph.D. degrees in CLFS and must be in either a comparative literature named option or a folklore studies named option.

The department also offers doctoral minors in comparative literature and in folklore to interested Ph.D. candidates in other degree programs. At the beginning of study in the minor program, all students seeking a comparative literature or folklore doctoral minor should contact the CLFS director of graduate studies concerning coursework for the minor. Completion of the minor will be certified by either the director of graduate studies or the department chair.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., with available named options in Comparative Literature, and Folklore Studies

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Successful completion of the master's degree requires 30 credit hours of coursework. This requirement includes that at least 50 percent of these credit hours must be received in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions, provided this coursework relates directly to the student's CLFS graduate studies. Coursework earned five or more years prior to admission to a master's degree may not be used to satisfy the CLFS degree requirements.

To apply credit for prior graduate coursework toward requirements the student should furnish the student's advisor and the director of graduate study with a transcript of the coursework and copies of work done in courses and syllabi, if available. This task should be completed in anticipation of the Second Year exam. Credits deemed eligible to apply toward requirements will be listed in the official form that the department provides to the Graduate School in preparation for the award of the master's degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a Master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

COMP LIT 702 Problems in Comparative Studies; successful completion of the Examination in a Second Language; at least one graduate-level seminar in CLFS; students planning to pursue the Comparative Literature Ph.D. option must take COMP LIT 771 Literary Criticism; students planning to pursue the Folklore Studies Ph.D. option must take FOLKLORE 510 Folklore Theory (or other folklore course approved by the advisor); overall GPA of 3.5; successful completion of the Second Year (M.A.) examination.

### OVERALL GRADUATE GPA REQUIREMENT

3.5 GPA required.

### OTHER GRADE REQUIREMENTS

None.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. An advisor is a faculty member from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. An advisor is assigned to incoming students but can be changed. Students can be suspended from the Graduate School if they do not have an advisor.

### ASSESSMENTS AND EXAMINATIONS

Second Year Examination

The Second Year Examination is a written examination administered by the program followed by an oral defense.

M.A. named option in Folklore Studies: In consultation with the student's supervisor, a student pursuing the Folklore named option may elect to produce an M.A. thesis. The thesis will be presented to a committee of three faculty members, including the supervisor, and defended in an oral examination. Depending on the length and nature of the thesis project, and subject to the supervisor's approval, this project may substitute for all or part of the second-year exam. If a student opts for the M.A. thesis option, that thesis project will be the subject of the master's oral examination. Otherwise, the second year examination will be the subject of the Master's Oral Examination.

Students who are not interested in pursuing the Ph.D. may elect to offer an M.A. thesis in place of the seminar requirement. In such cases, the student must work under the direction of a department faculty member who will act as supervisor of the thesis. The thesis will be presented to a committee of three faculty members, including the supervisor, and defended in an oral examination. A bound copy of the thesis must be

deposited with the department. Otherwise, the Second Year Examination will be the subject of the Master's Oral Examination.

## TIME CONSTRAINTS

The Second Year Examination must be taken in the fourth semester of graduate study. If a candidate enters the graduate program with an M.A. in comparative literature from another institution, the Second Year Examination must be taken in the second semester of graduate study. Students entering with an M.A. in another discipline may take the examination in either the second or the fourth semester.

The thesis, written in consultation with the major professor, must be completed no later than two semesters after thesis work begins.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Second Language: An examination in a second language (other than English) must be taken by the end of the second semester of graduate study and before the Second Year Examination.

In the event that the linguistic tradition under examination cannot be covered by a member of the comparative literature and folklore studies faculty, the advisor will invite an appropriate member of the UW–Madison faculty to assist in the administration of the examination.

## ADMISSIONS

Applicants to the graduate program in the CLFS should submit to the department a statement of purpose for graduate study, transcripts, letters of recommendation, a writing sample (in English) of no more than 15 pages, a list of foreign language and literature coursework, and Graduate Record Exam (GRE) scores. (International applicants should consult the department and the Graduate School website for information and additional application requirements regarding TOEFL, MELAB or IELTS tests.)

Admission to graduate study in the comparative literature named option requires advanced foreign language work at the literary level in at least one language other than English; the student's academic record should demonstrate the ability to work critically in at least two literatures (one of which may be English).

All entering students are admitted into one of the two named options in the M.A. program. Students are accepted into the Ph.D. program upon successful completion of the Second-Year Examination.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry and schools of practice in comparative humanities.
- Identifies sources and assembles evidence pertaining to questions or challenges in comparative humanities.

- Demonstrates understanding of comparative humanities in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information to questions or challenges in comparative humanities.
- Communicates clearly in ways appropriate to comparative humanities.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Dharwadker, Gilmore (also Landscape Architecture), Layoun, Livorni (chair, also French and Italian), Rosenblum (also Jewish Studies); Associate Professors Livanos, Statkiewicz; Assistant Professors Fielder, Grunewald, Neyrat, Wells. **Affiliate Faculty:** Adler (German, Nordic, and Slavic), Casid (Art History), Garlough (also Gender and Women's Studies), Goodkin (French and Italian), Guyer (English), Kern (Asian Languages and Cultures), Longinovic (German, Nordic, and Slavic), Valentine (Linguistics); Associate Professors Kapust (Political Science); **International Affiliate Faculty:** Ramalho de Sousa Santos (University of Coimbra, Portugal). See *also* Faculty (<http://clfs.wisc.edu/people/faculty>) on the department website.

## COMPARATIVE LITERATURE AND FOLKLORE STUDIES, PH.D.

Graduate study in the Department of Comparative Literature and Folklore Studies (CLFS) emphasizes the active research into and theorizing of the comparative, the literary, the folkloric, and the cultural in a global context. CLFS faculty and students investigate cultures within, across, and beyond linguistic, regional, and national boundaries. The comparative and pluri-lingual nature of CLFS at UW–Madison enables the careful and informed study of new and evolving theories and cultural methodologies as well as of prior, present, and emerging cultural and literary practices and phenomena.

CLFS students study problems and create public projects exploring culture, genre, literary and cultural movements, mode, performance, periodization, theory and criticism, tradition, translation, and transmission. They engage problems and questions concerning the interaction and shifting boundaries of 'elite' and 'folk' literatures and other forms of creative expression and their transformation in their interaction; folklore and literature with other arts or other disciplines; and the relationships between creative expression and economic, sociopolitical, traditional, and other historical structures and issues, including ideological and value formations.

In addition to professional research and communication in the academic fields of comparative literature and folklore studies, CLFS is committed to public humanities projects that place professional expertise in the service of communities and publics.

Graduate study leads to the M.A. and Ph.D. degrees in CLFS and must be in either a comparative literature named option or a folklore studies named option.

The department also offers doctoral minors in comparative literature and in folklore to interested Ph.D. candidates in other degree programs. At the beginning of study in the minor program, all students seeking a comparative literature or folklore doctoral minor should contact the CLFS director of graduate studies concerning coursework for the minor. Completion of the minor will be certified by either the director of graduate studies or the department chair.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D., with available named options in Comparative Literature, and Folklore Studies

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Successful completion of the Ph.D. requires 51 credit hours of coursework. This requirement includes that at least 50 percent of these credit hours must be received in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions, provided this coursework relates directly to the student's CLFS graduate studies. Coursework earned five or more years prior to admission to a master's degree may not be used to satisfy the CLFS degree requirements.

To apply credit for prior graduate coursework toward requirements the student should furnish the student's advisor and the director of graduate study with a transcript of the coursework and copies of work done in courses and syllabi, if available. This task should be completed in anticipation of the Second Year exam. Coursework earned ten or more years prior to admission to the doctoral degree may not be used to satisfy the CLFS degree requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

All M.A. requirements; COMP LIT 822 Seminar-Translation; at least two other graduate seminars in comparative literature and folklore studies; the requirements for a Ph.D. option; demonstration of proficiency in a third language by passing an intermediate literature course with a grade of AB or better; successful completion of the Ph.D. preliminary examinations; successful completion of the dissertation; successful completion of the oral dissertation defense.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a 12-credit minor. Students may pursue a concentrated minor including the Option A or a distributed minor (Option B). Students in either of the named options in the CLFS Ph.D. program may pursue minors in their department so long as they do not have the same name as their named option.

### OVERALL GRADUATE GPA REQUIREMENT

3.5 GPA required

### OTHER GRADE REQUIREMENTS

None.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. An advisor is a faculty member from the major department responsible for providing advice regarding graduate studies. The advisor also serves as the dissertation advisor. An advisor is assigned to incoming student but can be changed. Students can be suspended from the Graduate School if they do not have an advisor.

### ASSESSMENTS AND EXAMINATIONS

Comprehensive Examinations

The comprehensive examinations, or "prelims," consist of three written examinations based on reading lists that have been approved by the advisor and the reading committees followed by an oral defense.

#### Dissertation

The dissertation is a written, substantial, and original contribution to knowledge guided by a dissertation committee consisting of the student's advisor and two members of the faculty of the department. The student will submit to the dissertation committee for approval a written proposal that will include a bibliography of primary and secondary source materials.

Upon completion of the dissertation, the student will be examined in an oral defense of the dissertation and related areas by members of the dissertation committee in concert with two additional members, at least one of which must be from a related discipline outside of the department.

### TIME CONSTRAINTS

Comprehensive examinations must be taken only on completion of the requisite minimum degree credits.

Within six weeks of successful completion of the comprehensive examination, candidates must submit a working draft of a dissertation proposal their dissertation committee members.

The dissertation must be deposited within two weeks of completion of all degree requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

**Second language:** An examination in a second language (other than English) must be taken by the end of the second semester of graduate study and before the Second Year Examination.

In the event that the linguistic tradition under examination cannot be covered by a member of the comparative literature and folklore studies faculty, the advisor will invite an appropriate member of the UW–Madison faculty to assist in the administration of the examination.

**Third Language:** A third language (other than English and the second language) proficiency must be demonstrated by the completion of an appropriate intermediate or advanced literature course with a grade of AB or better. This requirement must be satisfied before the Comprehensive (or "prelim") Examinations.

**Fourth Language Reading Requirement:** For students pursuing the Comparative Literature Ph.D. option, each candidate must demonstrate reading knowledge of at least one of the following languages: Sanskrit, Hebrew, Classical Greek, Latin, a Medieval language, or a major Asian or African language. This requirement is satisfied by the completion of an appropriate course with a grade of AB or better.

## ADMISSIONS

Applicants to the graduate program in the CLFS should submit to the department a statement of purpose for graduate study, transcripts, letters of recommendation, a writing sample (in English) of no more than 15 pages, a list of foreign language and literature coursework, and Graduate Record Exam (GRE) scores. (International applicants should consult the department and the Graduate School website for information and additional application requirements regarding TOEFL, MELAB or IELTS tests.)

Admission to graduate study in the comparative literature named option requires advanced foreign language work at the literary level in at least one language other than English; the student's academic record should demonstrate the ability to work critically in at least two literatures (one of which may be English).

All entering students are admitted into one of the two named options in the M.A. program. Students are accepted into the Ph.D. program upon successful completion of the Second-Year Examination.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, and practice in comparative humanities.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge in comparative humanities.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions in comparative humanities to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Dharwadkar, Gilmore (also Landscape Architecture), Layoun, Livorni (chair, also French and Italian), Rosenblum (also Jewish Studies); Associate Professors Livanos, Statkiewicz; Assistant Professors Fielder, Grunewald, Neyrat, Wells. **Affiliate Faculty:** Adler (German, Nordic, and Slavic), Casid (Art History), Garlough (also Gender and Women's Studies), Goodkin (French and Italian), Guyer (English), Kern (Asian Languages and Cultures), Longinovic (German, Nordic, and Slavic), Valentine (Linguistics); Associate Professors Kapust (Political Science); **International Affiliate Faculty:** Ramalho de Sousa Santos (University of Coimbra, Portugal). See *also* Faculty (<http://clfs.wisc.edu/people/faculty>) on the department website.

## COMPARATIVE LITERATURE, DOCTORAL MINOR

The department offers a doctoral minor to graduate students of other departments and programs interested in pursuing the workings of

comparative methodology in a global context and in broadening the critical and conceptual framework for their study of literatures, cultures, and texts.

## REQUIREMENTS

The minor requires a minimum of 12 credits of coursework in comparative literature courses, which must include COMP LIT 702 Problems in Comparative Studies and at least one seminar (at the 800 or 900 level). Three credits may be taken at the 400 level, with the consent of the CLFS director of graduate studies.

## PEOPLE

**Faculty:** Professors Dharwadker, Gilmore (also Landscape Architecture), Layoun, Livorni (chair, also French and Italian), Rosenblum (also Jewish Studies); Associate Professors Livanos, Statkiewicz; Assistant Professors Fielder, Grunewald, Neyrat, Wells. **Affiliate Faculty:** Adler (German, Nordic, and Slavic), Casid (Art History), Garlough (also Gender and Women's Studies), Goodkin (French and Italian), Guyer (English), Kern (Asian Languages and Cultures), Longinovic (German, Nordic, and Slavic), Valentine (Linguistics); Associate Professors Kapust (Political Science); **International Affiliate Faculty:** Ramalho de Sousa Santos (University of Coimbra, Portugal). See *also* Faculty (<http://clfs.wisc.edu/people/faculty>) on the department website.

## FOLKLORE, DOCTORAL MINOR

Folklore is a multidisciplinary field of study concerned with the documentation and analysis of verbal, customary, musical, material, and performance traditions, primarily as they are sustained, revived, modified, invented by artists, educators, entrepreneurs, activists, communities, and states. CLFS offers courses on folkloric forms, practitioners, performances, theory, methods, and public presentation, with an emphasis on cross-cultural and interdisciplinary approaches. Graduate students interested in folklore as an area of concentration typically major in CLFS while specializing in particular languages and culture areas.

## REQUIREMENTS

Students interested in a doctoral minor in folklore may either select an Option A Folklore minor or develop an Option B distributed minor with coursework in folklore and at least one other program. Students choosing an Option A minor select an advisor from the CLFS faculty, in consultation with the chair of the department. Students are expected to achieve a B or better in four folklore courses at the 300 level or above. One course must be selected from the following courses in theory, history, or methodology of folklore: FOLKLORE/L I S 490, FOLKLORE 510. Three additional courses may be selected from these and other courses at the 300 level or above.

## PEOPLE

**Faculty:** Professors Dharwadker, Gilmore (also Landscape Architecture), Layoun, Livorni (chair, also French and Italian), Rosenblum (also Jewish Studies); Associate Professors Livanos, Statkiewicz; Assistant Professors Fielder, Grunewald, Neyrat, Wells. **Affiliate Faculty:** Adler

(German, Nordic, and Slavic), Casid (Art History), Garlough (also Gender and Women's Studies), Goodkin (French and Italian), Guyer (English), Kern (Asian Languages and Cultures), Longinovic (German, Nordic, and Slavic), Valentine (Linguistics); Associate Professors Kapust (Political Science); **International Affiliate Faculty:** Ramalho de Sousa Santos (University of Coimbra, Portugal). See *also* Faculty (<http://clfs.wisc.edu/people/faculty>) on the department website.



# COMPUTER SCIENCES

**Administrative Unit:** Computer Sciences

**College/School:** College of Letters & Science

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

**Named Options:** Professional Program (M.S.)

The Department of Computer Sciences offers the master of science and doctor of philosophy degrees in computer sciences. Research specialty areas include artificial intelligence, computational biology, computer architecture, computer graphics, computer networks, computer security, database systems, human-computer interaction, numerical analysis, optimization, performance analysis, programming languages and compilers, systems research, and theoretical computer sciences. The department's Graduate Advising Committee (GAC) advises all computer sciences graduate students except those who have acquired an official major professor for Ph.D. work and are not candidates for a master's degree. The role of GAC continues even after the student has a dissertation advisor, until the student reaches dissertator status. See the department website (<https://www.cs.wisc.edu>) for faculty interests, research activities, courses, facilities, and degree requirements.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Computer Sciences, Doctoral Minor (p. 201)
- Computer Sciences, M.S. (p. 201)
- Computer Sciences, Ph.D. (p. 203)

## PEOPLE

**Faculty:** Professors Hill (chair), A. Arpaci-Dusseau, R. Arpaci-Dusseau, Bach, Banerjee, Barford, Cai, Doan, Dyer, Ferris, Gleicher, Hill, Jha, Livny, van Melkebeek, Miller, Naughton, Patel, Reps, Ron, Shavlik, Sohi, Wood, Wright; Associate Professors Akella, Chawla, Joseph, Liblit, Mutlu, Sankaralingam, Swift, Zhu; Assistant Professors Albarghouti, D'Antoni, Gupta, Koutris, Sifakis, Snyder. *See also* Faculty (<https://www.cs.wisc.edu/people/faculty>) on the department website.

## COMPUTER SCIENCES, DOCTORAL MINOR

### REQUIREMENTS

Students planning to minor in computer sciences should consult with the department's Graduate Advising Committee. To obtain a doctoral minor, students must earn at least 9 credit hours in computer sciences courses, meeting the following requirements.

- All credits counted are for courses numbered 400 or above.
- At least 3 of the credits counted are for a course that involves a significant amount of programming in a structured language, such as

C, C++, or Java. All courses that transitively depend on COMP SCI 400 Programming III meet this requirement.

- At least 3 of the credits counted focus on an area of CS not closely related to the student's major, as deemed by a member of the Graduate Advising Committee.
- At least 3 of the credits counted are for a course numbered 700 or above that is not an individual instruction course, was taught by a full time faculty member in CS, and for which the student received a grade on the A-F scale of at least B.
- At most 3 credits counted are for individual instruction courses, which are courses with a middle digit 9 that are intended for independent study or research.
- No credits counted are for thesis courses. These are courses with the last two digits 90 that are intended for thesis or project work.
- All credits counted have received a satisfactory grade.
- GPA of the credits counted is at least 3.00.
- No more than 5 credits counted are for coursework completed more than five years prior to admission to the Ph.D. program; no credits counted are for coursework taken 10 years ago or more.

## PEOPLE

**Faculty:** Professors Hill (chair), A. Arpaci-Dusseau, R. Arpaci-Dusseau, Bach, Banerjee, Barford, Cai, Doan, Dyer, Ferris, Gleicher, Hill, Jha, Livny, van Melkebeek, Miller, Naughton, Patel, Reps, Ron, Shavlik, Sohi, Wood, Wright; Associate Professors Akella, Chawla, Joseph, Liblit, Mutlu, Sankaralingam, Swift, Zhu; Assistant Professors Albarghouti, D'Antoni, Gupta, Koutris, Sifakis, Snyder. *See also* Faculty (<https://www.cs.wisc.edu/people/faculty>) on the department website.

## COMPUTER SCIENCES, M.S.

The Department of Computer Sciences offers the master of science and doctor of philosophy degrees in computer sciences. Research specialty areas include artificial intelligence, computational biology, computer architecture, computer graphics, computer networks, computer security, database systems, human-computer interaction, numerical analysis, optimization, performance analysis, programming languages and compilers, systems research, and theoretical computer sciences. The department's Graduate Advising Committee (GAC) advises all computer sciences graduate students except those who have acquired an official major professor for Ph.D. work and are not candidates for a master's degree. The role of GAC continues even after the student has a dissertation advisor, until the student reaches dissertator status. See the department website (<https://www.cs.wisc.edu>) for faculty interests, research activities, courses, facilities, and degree requirements.

### REQUIREMENTS

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

## MASTER'S DEGREES

M.S., with available named option Professional Program

## MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 out of 30 total credits) must be completed in computer sciences graduate-level coursework numbered 700 or higher; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.S.: No credits taken at other institutions are allowed to satisfy requirements.

M.S.–Professional Program named option: With program approval, students are allowed to count no more than 14 credits of post-baccalaureate graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

M.S.: No credits from a UW–Madison undergraduate degree are allowed to satisfy requirements.

M.S.–Professional Program named option: With program approval, students are allowed to count no more than 7 credits from a UW–Madison undergraduate degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

M.S.: With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.S.–Professional Program named option: With program approval, students are allowed to count no more than 14 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## ADDITIONAL LIMITATIONS FOR PROFESSIONAL PROGRAM NAMED OPTION:

Summed across all the above categories (other graduate institutions, UW–Madison undergraduate, and UW–Madison Special student), a total of no more than 14 credits of prior coursework may be used to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

15 out of 30 total credits must be completed in computer sciences core courses numbered 700 or higher. 9 additional credits must be for computer sciences courses numbered 400 or above. The remaining 6 credits can be for any graded UW–Madison courses numbered 300 or above.

M.S.–Professional Program named option: Only computer sciences courses may be used to meet professional masters degree requirements.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

No other grade requirements.

## PROBATION POLICY

At the end of any regular (nonsummer) semester, a student is considered to be making satisfactory academic progress (SAP) if the following conditions are all satisfied:

The student has completed at least 6 (if full load) or 3 (if part load) credits of approved courses during the semester.

The student has removed all Incomplete grades from any previous regular semester or summer session.

The student has passed any required exams and procedures within designated time limits.

Any graduate student who fails to make SAP during two consecutive regular semesters (fall and spring, or spring and fall) will be dismissed from the department at the end of the subsequent summer session.

Any graduate student who fails to make SAP due to missed deadlines (criterion 3 above) will be dismissed from the department at the end of the subsequent summer session.

## ADVISOR / COMMITTEE

A member of the graduate advising committee must formally approve all graduate schedules each semester.

## ASSESSMENTS AND EXAMINATIONS

None.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Students with a strong background in computer sciences or a related field are encouraged to apply for admission. At a minimum, the applicant should have had some programming experience, including courses in data structures and machine organization, and should have had a year of

college-level mathematics at the calculus level or above. Applicants are evaluated based on their previous academic record, GRE scores, letters of recommendation, and a personal statement. All applications must be submitted online. Admission is very competitive. Aid is offered to about half of the students to whom admission is offered. Aid is usually in the form of fellowships, teaching assistantships, or research assistantships. For more information on admissions, visit the department website (<https://www.cs.wisc.edu>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Applies design and development principles in the construction of software systems of varying complexity.
- Applies foundational principles in practical applications.
- Independently acquires, synthesizes and applies required information pertaining to challenges in computer science.

### PROFESSIONAL CONDUCT

- Communicates clearly in ways appropriate to the field of study.

## PEOPLE

**Faculty:** Professors Hill (chair), A. Arpaci-Dusseau, R. Arpaci-Dusseau, Bach, Banerjee, Barford, Cai, Doan, Dyer, Ferris, Gleicher, Hill, Jha, Livny, van Melkebeek, Miller, Naughton, Patel, Reps, Ron, Shavlik, Sohi, Wood, Wright; Associate Professors Akella, Chawla, Joseph, Liblit, Mutlu, Sankaralingam, Swift, Zhu; Assistant Professors Albarghouti, D'Antoni, Gupta, Koutris, Sifakis, Snyder. *See also* Faculty (<https://www.cs.wisc.edu/people/faculty>) on the department website.

## COMPUTER SCIENCES, PH.D.

The Department of Computer Sciences offers the master of science and doctor of philosophy degrees in computer sciences. Research specialty areas include artificial intelligence, computational biology, computer architecture, computer graphics, computer networks, computer security, database systems, human-computer interaction, numerical analysis, optimization, performance analysis, programming languages and compilers, systems research, and theoretical computer sciences. The department's Graduate Advising Committee (GAC) advises all computer sciences graduate students except those who have acquired an official major professor for Ph.D. work and are not candidates for a master's degree. The role of GAC continues even after the student has a dissertation advisor, until the student reaches dissertator status. See the department website (<https://www.cs.wisc.edu>) for faculty interests, research activities, courses, facilities, and degree requirements.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 out of 51 total credits) must be completed in graduate-level coursework numbered 700 or higher; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits of graduate coursework from other institutions are allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENT: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Students must take at least one "breadth course" in each of three broad topic bands; contact program for list of specific topic bands and courses. Courses used to satisfy this requirement must consist either of

1. three courses numbered 700 or above, or
2. four courses with two numbered 700 or above and two numbered 500 or above.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Each "breadth course" (see above) must have received a grade of AB or above.

## PROBATION POLICY

At the end of any regular (nonsummer) semester, a student is considered to be making satisfactory academic progress (SAP) if the following conditions are all satisfied:

Before achieving dissertator status: the student has completed at least 6 (if full load) or 3 (if part load) credits of approved courses during the semester.

After achieving dissertator status: the student has satisfactorily completed at least three credits of courses approved by the student's major professor.

The student has removed all Incomplete grades from any previous regular semester or summer session.

The student has passed any required exams and procedures within designated time limits.

Any graduate student who fails to make SAP during two consecutive regular semesters (fall and spring, or spring and fall) will be dismissed from the department at the end of the subsequent summer session. Any graduate student who fails to make SAP due to missed deadlines (criterion 3 above) will be dismissed from the department at the end of the subsequent summer session.

## ADVISOR / COMMITTEE

A member of the graduate advising committee must formally approve all graduate schedules each semester until a student is in dissertator status.

## ASSESSMENTS AND EXAMINATIONS

Doctoral students must complete a qualifying process, a preliminary examination, and a dissertation requirement. The qualifying process includes both completion of "breadth courses" (see above) as well as satisfactory completion of a comprehensive written depth examination in a selected focus area. The preliminary examination is an oral examination demonstrating depth of knowledge in the area of specialization in which research for the dissertation will be conducted. The dissertation requirement consists of conducting a substantial piece of original research in computer science, reporting it in a dissertation that meets the highest standards of scholarship, and explaining and defending the contents of the dissertation in a final oral examination and defense.

## TIME CONSTRAINTS

Students must pass the qualifying process by the end of the sixth semester.

The preliminary exam must be taken within two years after the deadline for the qualifying exam.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing

the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Students with a strong background in computer sciences or a related field are encouraged to apply for admission. At a minimum, the applicant should have had some programming experience, including courses in data structures and machine organization, and should have had a year of college-level mathematics at the calculus level or above. Applicants are evaluated based on their previous academic record, GRE scores, letters of recommendation, and a personal statement. All applications must be submitted online. Admission is very competitive. Aid is offered to about half of the students to whom admission is offered. Aid is usually in the form of fellowships, teaching assistantships, or research assistantships. For more information on admissions, visit the department website (<http://www.cs.wisc.edu>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Hill (chair), A. Arpaci-Dusseau, R. Arpaci-Dusseau, Bach, Banerjee, Barford, Cai, Doan, Dyer, Ferris, Gleicher, Hill, Jha, Livny, van Melkebeek, Miller, Naughton, Patel, Reps, Ron, Shavlik, Sohi, Wood, Wright; Associate Professors Akella, Chawla, Joseph, Liblit, Mutlu, Sankaralingam, Swift, Zhu; Assistant Professors Albarghouti, D'Antoni, Gupta, Koutris, Sifakis, Snyder. *See also* Faculty (<https://www.cs.wisc.edu/people/faculty>) on the department website.

# COUNSELING PSYCHOLOGY

**Administrative Unit:** Counseling Psychology

**College/School:** School of Education

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S. in Counseling; Ph.D. in Counseling Psychology

**Minors and Certificates:** Doctoral Minor in Counseling Psychology

## PH.D. PROGRAM

The Department of Counseling Psychology offers a doctoral program in counseling psychology, which is fully accredited by the American Psychological Association.

The Ph.D. program in counseling psychology involves required course work in counseling psychology and related departments, as well as a series of supervised clinical and supervision training experiences. Through the course of this training, students are expected to attain competence in three domains that are critical to effective performance as a professional psychologist. The three domains are mutually reinforcing, in that skills in one domain enhance competence in the others.

- Preparation for role as a professional psychologist: professional standards and conduct; scientific foundations; knowledge and skill in psychological practice; knowledge and skill in clinical supervision; relational skills.
- Understanding scientific basis for practice: knowledge of research methods; application of research findings to psychological practice; application of scientific thinking to practice.
- Multicultural competence and social-justice orientation: cultural and scientific knowledge relevant to diverse and underrepresented groups; awareness of self as a cultural being; skill in application of knowledge of self, culture, and context to clinical work.

Supervised practicum experiences are available through many local agencies, including the departmental training clinic and the campus Counseling and Consultations Services. The culminating clinical training experience is a yearlong predoctoral internship, generally off campus and obtained through a national search-and-match process. Approximately 40 doctoral students and 25 master's students are enrolled in the department.

Graduates are employed as college/university teachers and researchers, in private practice, community agencies, government agencies, hospitals and professional organizations, and as administrators and public and private consultants.

## M.S. PROGRAM

The department offers a terminal master's program in counseling. Requirements for the master's degree are designed to ensure that each student attains a substantive social science base and demonstrates competency in individual and group counseling, consultation, research, ethics, multiculturalism, social justice and vocational psychology. Master's graduates may be licensed as professional counselors in the State of Wisconsin. Supervised practicum experiences are available through the training clinic, university counseling centers, community mental health centers and numerous other campus units and community agencies. Approximately 25 master's students and 40 doctoral students are enrolled in the department. For more information, see the department website.

Master's graduates are employed in community agencies that provide counseling services, university and college counseling centers and in non-counseling positions.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Counseling Psychology, Doctoral Minor (p. 205)
- Counseling Psychology, Ph.D. (p. 205)
- Counseling, M.S. (p. 209)

## PEOPLE

**Faculty:** Professors Hoyt (chair), Gloria, Quintana, Uttal, Wampold; Associate Professors Thompson, Valdez; Faculty Associate Lotta; Clinical Associate Professor Graham; Visiting Assistant Professor Budge

## COUNSELING PSYCHOLOGY, DOCTORAL MINOR

Students from other departments may complete a doctoral minor in counseling psychology that provides preparation for the helping professions. Students in business, communication, education, medicine, nursing, psychology, social work and sociology, in particular, may find opportunities for study closely related to their major fields of study. Students must secure an advisor from the counseling psychology faculty and this must be approved before taking courses in the minor. Doctoral minors may not enroll in practica unless they have been admitted by the doctoral committee into the "professional practice minor." Only students who are enrolled in other professional psychology programs may be admitted to the practice minor.

## PEOPLE

**Faculty:** Professors Hoyt (chair), Gloria, Quintana, Uttal, Wampold; Associate Professors Thompson, Valdez; Faculty Associate Lotta; Clinical Associate Professor Graham; Visiting Assistant Professor Budge

## COUNSELING PSYCHOLOGY, PH.D.

The APA-accredited doctoral program in counseling psychology is based on the scientist/practitioner model of professional psychology and integrates counseling and psychological theory, scientific inquiry, and supervised practice. Counseling psychology is a psychoeducational specialty in which practitioners help others to improve their well-being, alleviate their distress, resolve their crises, and increase their ability to solve problems and make decisions. Counseling psychologists apply systematic, research-based approaches to help themselves and others understand and develop solutions to problems that are educational, vocational, emotional, social, cultural, health-related, or developmental in nature.

The UW-Madison program places special emphasis on multicultural competence and social justice, integration of research and practice, and preparation for ethical and professional conduct as either a researcher, teacher, or practitioner. The theoretical orientation of the program is best

described as eclectic. Course work emphasizes the research base of counseling psychology and students are expected to involve themselves in faculty research. All students complete a one-year, full-time predoctoral internship as a culminating training experience. The planned length of the program for students entering with a master's degree is five years, although students may opt to take additional time depending on academic background and career objectives.

The department also admits a small number of students to a post-B.A. Ph.D. program. These students apply to the Ph.D. program at the completion of their undergraduate degree, and are required to integrate coursework and professional practice training at the master's level, as well as introductory doctoral coursework, during the first two years of study. Students admitted to the post-B.A. Ph.D. program typically have excellent academic records and experiences that demonstrate high levels of both helping skills and research skills prior to admissions. The planned length of the post-B.A. Ph.D. program is six years, although actual completion times will vary depending on student needs and career goals.

The mission of the counseling psychology Ph.D. program is to train psychologists who are skillful in research and intervention with diverse populations, who integrate science and practice into their professional roles, and who uphold high ethical and professional standards as psychologists. Program graduates are broadly prepared for a number of professional roles, including direct service, research, teaching, clinical supervision, and program design and evaluation.

The Ph.D. program is accredited by the American Psychological Association. For further information on accreditation, contact APA's Office of Program Consultation and Accreditation, 750 First Street NE, Washington, DC 20002-4242; 202-336-5979; [apaaccred@apa.org](mailto:apaaccred@apa.org).

## LICENSURE AS A PSYCHOLOGIST

Graduates of the Ph.D. program are eligible for licensure to practice psychology. Licensure requirements differ by state, and currently most states require additional supervised practice post-Ph.D. All states require passage of the national licensure examination (the Examination for Professional Practice of Psychology or EPPP), and most states also have state-specific written and oral examinations. Links to descriptions of licensure requirements by state may be obtained from the website of the Association of State and Provincial Psychology Boards (<http://www.asppb.net>).

## FUNDING

Although the program cannot guarantee funding to students admitted to the Ph.D. program, it is usual for these students to be supported by a combination of graduate assistantships and fellowships while they are completing course work in the program. The predoctoral internship is a paid appointment, with benefits, as well.

Department assistantships are assigned through a competitive application process each spring. Admitted students are included in the process the spring before they start in the program. Students are strongly encouraged to also apply for teaching or project assistantships outside the department, and most obtain at least some of their support in other departments or units on campus during their time in the program. Currently, all graduate assistantships and fellowships include tuition remission and health benefits.

Qualified applicants may be nominated by the department for the Ed-GRS Education Graduate Research Scholars Fellowship and/or the University Fellowship. Qualifications for these awards are described in the departmental applications materials. Applicants are also encouraged to seek other private or federal funding sources. Applicants may obtain additional funding information from the local/college library and the Office of Student Financial Aid (which also has information on loans and work study).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

Post-M.A.: 68 credits

Post-B.A.: 95 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

Post-M.A.: 47 credits

Post-B.A.: 74 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Post-M.A.: Half of degree coursework (34 out of 68 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

Post-B.A.: Half of degree coursework (48 out of 95 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 21 credits of graduate coursework from other institutions. Coursework earned four or more years prior to admission to the doctoral program is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned four or more years prior to admission to the doctoral program is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

12 credits without advisor approval. Up to 15 credits with advisor approval.

## PROGRAM-SPECIFIC COURSES REQUIRED

Post–M.A. track:

Code	Title	Credits
COUN PSY/PSYCH/ RP & SE 729	Advanced Social Psychology	3
COUN PSY/ ED PSYCH/ RP & SE 735	Legal and Ethical Bases of Counseling and Psychology	3
COUN PSY/ ED PSYCH/ RP & SE 736	Seminar in Psychology of Individual Differences	3
COUN PSY/ ED PSYCH/ RP & SE 737	Seminar in History and Systems of Psychology	3
ED PSYCH 542	The Biological Basis of Behavior	3
ED PSYCH/ HDFS 725	Theory and Issues in Human Development	3
ED PSYCH 795	Introduction to Learning Sciences I	3
COUN PSY 890	Advanced Assessment Techniques in Counseling Psychology	3
COUN PSY 900	Counseling Psychology Practicum– Foundational	2-6
COUN PSY 902	Counseling Psychology Practicum in Supervision	2-6
COUN PSY 903	Counseling Psychology Practicum– Advanced	3
COUN PSY 905	Research Practicum in Counseling Psychology	3
COUN PSY/ RP & SE 925	Seminar in Counseling Psychology	3
COUN PSY 950	Research Methods in Counseling Psychology	2-3
COUN PSY 951	Counseling Psychology Research in Individual Intervention	2-3
COUN PSY 740	Abnormal Behavior and Psychopathology	3
COUN PSY 960	Research Methods in Counseling Psychology, II	3
RP & SE 980	Adult Cognitive Assessment	3
COUN PSY 990	Research or Thesis	1-12

Post–B.A. track:

Must complete all courses listed for the Post–MA track and

Code	Title	Credits
COUN PSY 620	Special Topics in Counseling and Guidance	1-6
COUN PSY 800	Theories of Counseling	3
COUN PSY 805	Helping Relationships and Techniques	3
COUN PSY 806	Supervised Practicum in Counseling I	3
COUN PSY 807	Supervised Practicum in Counseling II	2-5
COUN PSY 808	Supervised Practicum in Counseling III: Advanced	2-5
COUN PSY/ RP & SE 850	Consultation Procedures for Counselors	3
COUN PSY 860	Social and Cultural Foundations of Counseling	3
COUN PSY 865	Lifestyle and Career Development	3

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Ph.D. students in the Department of Counseling Psychology may elect to develop a minor area of concentration. This minor is optional. Students who wish to complete a cohesive body of work outside the major may wish to obtain a doctoral minor. Students are expected to consult with their advisors concerning minor/breadth requirements.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Students are required to attain a minimum course grade of B for all required courses.

## PROBATION POLICY

Placement on probation indicates a very serious faculty concern about a student's performance. Students are placed on probation, as opposed to being dismissed from the program, when the faculty determines that the student likely will be able to address the difficulty that led to the probation if appropriate remediation is provided. If a recommendation for probation and remediation is adopted by the faculty, the student and advisor work with the Doctoral Training Committee (or a subset of this committee) to formulate a remediation plan including explicit goals and deadlines for evaluation of their attainment.

Students on probation cannot be approved as ready for the next level of clinical training (i.e., for foundational practicum; for internship) until they have successfully remediated the identified concern(s). This can have a substantial impact on time to degree, as practicum applications begin in the fall semester for the following academic year.

## ADVISOR / COMMITTEE

Upon admission to the doctoral program, all students are assigned a faculty advisor. The doctoral student may select a major professor from the Department of Counseling Psychology who is not the original faculty advisor. In view of the important role that the major professor plays in the student's dissertation research, students are advised to allow themselves sufficient time to get acquainted with all faculty, so that they can select a major professor with whom they share similar research interests, career goals, or other interests. The doctoral student's faculty advisor plays

an important role in monitoring and assisting the student with program planning.

Reviews of student progress are an agenda item for departmental faculty meeting in November (1st-year students only) and in April or May (all active Ph.D. students). All students are required to conduct a yearly progress report meeting with their advisor. Student perspectives are taken into account in these reviews, and all students complete the Doctoral Student Report on Progress, in conjunction with their advisors.

## ASSESSMENTS AND EXAMINATIONS

Satisfactory progress is demonstrated by earning a minimum grade of B in all required courses, demonstration of competency on routine evaluation milestones, responsible professional conduct in employment and practicum settings, and timely progress on independent work. A comprehensive formative review of student performance, encompassing academic and clinical training, research involvement, and other roles such as employment and departmental activities, is conducted annually.

The doctoral preliminary examination includes three components, all of which include both written and oral presentations. The clinical case study (PE-1) is an in-depth reflection on a single counseling case, and serves as an exemplar of clinical competencies in the role of counselor. The supervision case study (PE-2) is an in-depth reflection on a relationship with one supervisee, and serves as an exemplar of clinical competencies in the role of supervisor. The dissertation proposal (PE-3) includes a literature review and method section for a proposed dissertation project, and serves as an exemplar of academic and scientific proficiency.

## TIME CONSTRAINTS

Students have eight years from the date of admission to complete all of the necessary courses. Courses that are more than eight years old will not fulfill program completion requirements for admission to candidacy. Admission to candidacy occurs when students successfully complete all required coursework and pass their doctoral preliminary examinations. Students must be admitted to candidacy within ten years of admission to the Department. Once admitted to candidacy (dissertator status) the student has five years to complete the dissertation and pass the final oral examination.

Once students are admitted they are expected to maintain continuous enrollment and make satisfactory progress toward their degree. Failure to maintain continuous enrollment may result in lengthy reentry process or possible termination from the program.

Prior to reentry into the program, the student should contact the Department and petition the faculty for reentry. The full faculty will determine whether the student is granted reentry without conditions, granted reentry conditionally (e.g., require additional coursework or adherence to time lines for completion of degree requirements) or denied reentry.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

### ADMISSIONS DECISIONS

Admission to the counseling psychology Ph.D. program is highly competitive. Approximately 110 doctoral applications are received each year. The department typically enrolls seven to eight doctoral applicants

per year. Students are admitted once per year for either summer or fall matriculation. The Ph.D. application deadline is December 1.

In addition to acquired academic competencies and counseling skills, the counseling profession requires a high level of ethical behavior, self-awareness, and personal maturity. All are considered in assessing a student's fitness for a career as a professional counselor or counseling psychologist.

Currently, all materials listed below must be submitted to the department at the time of application and received by the application deadline:

- The Graduate School Electronic Application and the associated Counseling Psychology Ph.D. Supplemental Electronic Application.
- The general Graduate Record Exam (GRE) is required. The subject test in psychology is optional. Scores are considered in conjunction with other admission information in the admission decision. Scores are to be sent directly from ETS to the University of Wisconsin–Madison.
- Transcripts from all institutions attended since high school must be sent directly to the Department of Counseling Psychology. The GPA for the last 60 semester credits (or last two years) of undergraduate work is calculated and should be at least 3.0 on a 4.0 scale.
- A statement of one to three pages should address specific goals and interests, background preparation; (both academic and professional), and reasons for graduate study in the Department of Counseling Psychology. This essay is electronically submitted through the Graduate School Application portal.
- Letters of recommendation should include at least three current letters that address the applicant's professional and scholarly competence and potential. Letters are electronically solicited while completing the Graduate School Application on-line.
- All work experiences (volunteer or paid) should be included on the Supplemental Application, whether or not they are counseling related.
- Publications, presentations, and research experiences should be included on the Supplemental Application.

*The application process is subject to change. Applicants should refer to the department website for the most up-to-date information.*

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Student will prepare for role as professional psychologist;
- Apply professional standards and conduct;
- Demonstrate scientific foundations;
- Acquire knowledge and skill in psychological practice;
- Acquire knowledge and skills in clinical supervision;
- Develop relational skills.
- Student will gain an understanding of the scientific basis for practice:
- Acquire knowledge of research methods;
- Apply research findings to psychological practice;
- Apply scientific thinking to practice.

### PROFESSIONAL CONDUCT

- Student will develop a multicultural competence and social justice orientation:



- Acquire cultural and scientific knowledge relevant to diverse and underrepresented groups;
- Develop awareness of self as a cultural being;
- Develop skill in application of knowledge of self, culture, and context to clinical work.

## PEOPLE

**Faculty:** Professors Hoyt (chair), Gloria, Quintana, Uttal, Wampold; Associate Professors Thompson, Valdez; Faculty Associate Lotta; Clinical Associate Professor Graham; Visiting Assistant Professor Budge

## COUNSELING, M.S.

The M.S. program emphasizes counseling in community and agency settings, including university and college counseling centers. The master's degree emphasizes service delivery, and its practical/internship components reflect that emphasis. The curriculum stresses knowledge and development of skills in individual and group counseling, consultation, research, ethics, multiculturalism, social justice and vocational psychology. Students are prepared to work predominantly as practitioners in community agencies, postsecondary educational institutions, business and industry. The program fulfills academic requirements to become a licensed professional counselor in the state of Wisconsin.

The sequence of required courses combined with lab and field experiences can be planned on either a full- or part-time basis, but care must be taken in proper sequencing of courses for those attending part-time. Those students enrolling on a full-time basis typically complete the program in two years, including summer classes. For more information, visit the program website (<http://counselingpsych.education.wisc.edu/cp/masters-program>).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

48 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

39 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (24 out of 48 total credits) must be completed in graduate-level coursework; courses with the Graduate Level

Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to the master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison University Special students. Coursework earned five or more years prior to admission to the master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

12 credits without advisor approval. Up to 15 credits with advisor approval.

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
COUN PSY/ RP & SE 730	Professional Counseling Orientation	3
COUN PSY 740	Abnormal Behavior and Psychopathology	3
COUN PSY 791	Foundations of Clinical Mental Health Counseling	3
COUN PSY 800	Theories of Counseling	3
COUN PSY 801	Assessment and Testing in Mental Health Counseling	3
COUN PSY 802	Group Dynamics Processing and Counseling	3
COUN PSY 804	Research and Evaluation in Mental Health Counseling	3
COUN PSY 805	Helping Relationships and Techniques	3
COUN PSY 806	Supervised Practicum in Counseling I	3
COUN PSY 807	Supervised Practicum in Counseling II	2-5
COUN PSY 808	Supervised Practicum in Counseling III: Advanced	2-5
COUN PSY 825	Counseling Psychology Techniques With Families	3
COUN PSY/ RP & SE 850	Consultation Procedures for Counselors	3
COUN PSY 860	Social and Cultural Foundations of Counseling	3
COUN PSY 865	Lifestyle and Career Development	3

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Students are required to attain a minimum course grade of B for all coursework that fulfills the 48-credit requirement.

## PROBATION POLICY

When concerns arise about a student's performance which warrants immediate attention, a non-routine review will be initiated. Concerns that would prompt a nonroutine review include: academic proficiency (e.g., grade of BC or lower in a required course); clinical competence and/or termination from a practicum placement; interpersonal functioning; and/or unethical behaviors and/or interactions. The student will be notified of the concern by his/her advisor or the training director. The Master's Training Committee will discuss the matter to determine whether the concern will be taken to the full faculty for consultation and/or decision. An ad hoc committee will work with the student to create a "development plan" or a "remediation plan" (i.e., student is under probation), depending on the seriousness of the issue(s). If the concern persists after the remediation plan or the issue(s) are deemed irreparable, the committee may recommend dismissal from the program to the full faculty. If the full faculty vote is in agreement with the recommendation for dismissal, the student will be dismissed from the program.

## ADVISOR / COMMITTEE

Upon admission to the master's program, students will be assigned a faculty advisor to facilitate their entry to the program. The faculty advisor has several responsibilities, which include: assisting students with course selection; guiding students' clinical and professional development; guiding students' research, including master's thesis (optional); and giving final approval for master's work. The advisor is also available to answer other questions and concerns that may arise regarding departmental procedures, licensure issues and practicum placement.

## ASSESSMENTS AND EXAMINATIONS

The Professional Integration Exercise (PIE) is a capstone experience for all master's students, where they have the opportunity to pull together their learning and skills and their overall professional identity. Through this oral clinical case conceptualization, they have the opportunity to demonstrate to the faculty their readiness as a master's-level clinician. The PIE will be conducted in late spring during students' second year of training.

## TIME CONSTRAINTS

If students have been absent for five or more years they must petition the counseling psychology faculty, in writing, for readmission. If successful, they must file a new Graduate School application for admission and submit it with a new application fee. Master's students who do not enroll for a period of five or more years are required to retake some or all Program coursework. All coursework, including deficiencies, must be completed within eight years of admission to the program.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Admission to the program is highly competitive. More than 150 master's applications are received each year. The department enrolls 12–15 master's students per year. The application deadline for the master's program is January 5.

In addition to acquired academic competencies and counseling skills, the counseling profession requires a high level of ethical behavior, self-awareness and personal maturity. All are considered in assessing a student's fitness for a career as a professional counselor. The applicant will be expected to meet minimum requirements for admission set by the Graduate School. Department requirements are more rigorous. An undergraduate degree is required for the master's program.

Applicants should have 3 credit hours of introductory psychology and 3 credit hours in statistics or measurement/psychometrics/ test construction. If the applicant has not completed the necessary requirements at the time of application, he or she may be admitted with deficiencies and complete the course work in addition to the program requirements. Prior volunteer or paid work experience in community agencies is important for placement in community agencies for practicum.

All materials listed below must be submitted to the department at the time of application and received by the application deadline:

- The Graduate School Electronic Application and the associated Counseling M.S. Supplemental Electronic Application.
- The general Graduate Record Exam (GRE) is required and should be taken in or before October for applications during the next year. There are no set cutoff scores in the department, but average scores of admitted students are at approximately the 70th percentile in each area. The subject test in psychology is optional. Scores are considered in conjunction with other admission information in the admission decision. Scores are to be sent directly from ETS to the University of Wisconsin–Madison.
- Transcripts from all postsecondary institutions attended must be sent directly to the Department of Counseling Psychology Department. The GPA for the last 60 semester credits (or last two years) of undergraduate work is calculated and should be at least 3.0 on a 4.0 scale. Average undergraduate GPAs of admitted applicants are above 3.3.
- A statement of one to three pages should address specific goals and interests; background preparation; (both academic and professional), and reasons for graduate study in the Department of Counseling Psychology. This essay is electronically submitted through the Graduate School Application portal.
- Letters of recommendation should include at least three current letters that address the applicant's professional and scholarly competence and potential. Letters are electronically solicited while completing the Graduate School Application online.
- All work experiences (volunteer or paid) should be included in the Supplemental Application, whether or not they are counseling related.
- Publications, presentations and research experiences should be included in the Supplemental Application.

*The application process is subject to change. Applicants should refer to the department website for the most up-to-date information.*

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will develop knowledge foundational to the practice of mental health counseling including normative and nonnormative human development; individual, group, and couples/family counseling; cultural and social diversity. measurement and evaluation; and exposure to crisis, trauma, and stress.
- Students will develop skills for effective individual, family, and group counseling for mental health concerns and well-being as well as effective consultation, evaluation and progress monitoring.
- Students will apply principles associated with multiculturalism, polyculturalism, and social justice.

### PROFESSIONAL CONDUCT

- Students will develop understanding, identification with and comportment with the profession of mental health counseling including standards of care, moral and ethical principles, professional identity, professional relationships, professional demeanor, self-reflection, and awareness of impact on others.

## PEOPLE

**Faculty:** Professors Hoyt (chair), Gloria, Quintana, Uttal, Wampold; Associate Professors Thompson, Valdez; Faculty Associate Lotta; Clinical Associate Professor Graham; Visiting Assistant Professor Budge

# CURRICULUM AND INSTRUCTION

**Administrative Unit:** Curriculum and Instruction

**College/School:** School of Education

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor Curriculum and Instruction; Doctoral Minor in International Education; Doctoral Minor in Qualitative Research Methodology in Education

**Named Options:** Secondary English Education (M.S.), Secondary Mathematics Education (M.S.), Secondary Science Education (M.S.), Secondary Social Studies Education (M.S.)

The Department of Curriculum and Instruction offers graduate studies that lead to the master of science (M.S.) in curriculum and instruction and the doctor of philosophy (Ph.D.) in curriculum and instruction. Each graduate student must concentrate in one of the department's areas of study, listed in the next section.

The department also offers a master of science with secondary teaching certification as an M.S. with named options in Secondary English Education, Secondary Mathematics Education, Secondary Science Education, and Secondary Social Studies Education.

## AREAS OF STUDY

In accord with interests and professional goals, each admitted graduate student is assigned to an *area of study* and to an initial faculty advisor in that area. Areas of study are curriculum studies, global studies, digital media, mathematics education, music education, science education, social studies education, literacy studies, English as a second language, bilingual education, world language education, multicultural education, teacher education, and early childhood studies.

## NONDEGREE GRADUATE-LEVEL COURSES AND ADVANCED CERTIFICATION PROGRAMS

### NONDEGREE GRADUATE-LEVEL COURSES

Already-certified educational professionals who wish to earn credit in graduate-level courses to improve professionally or to update or renew a license but do not wish to seek a graduate degree may register as University Special students through the Adult Career and Student Services Center (<http://continuingstudies.wisc.edu/advising>) in the Division of Continuing Studies. Persons who plan to eventually earn a graduate degree in the Department of Curriculum and Instruction should apply for admission as a graduate student before beginning their studies and not accumulate credits as a University Special student. University policies actively discourage belated requests to allow work done as a University Special to count toward graduate-degree requirements.

### ADVANCED CERTIFICATION PROGRAMS

In addition to the master's degree and Ph.D. degree programs, the department offers several advanced certification programs involving certificates that are available only at the post-baccalaureate level, including bilingual certification, English as a second language K-12 certificate, reading teacher program and reading specialist

program. For more information, see the department website (<https://ci.education.wisc.edu>).

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Curriculum and Instruction, Doctoral Minor (p. 212)
- Curriculum and Instruction, M.S. (p. 213)
- Curriculum and Instruction, Ph.D. (p. 216)
- International Education, Doctoral Minor (p. 218)
- Qualitative Research Methodology in Education, Doctoral Minor (p. 219)
- Science Education, Doctoral Minor (p. 219)

## PEOPLE

**Faculty:** Professors Graue (chair), Feinstein (graduate program chair), Apple, Baker, Compton-Lilly, Gomez, Grant, Hawkins, Hess, Ivey, James, Knuth, Koza, Ladson-Billings, Popkewitz, Squire, Tochon, Winn; Associate Professors Dobbs, Ellis, E. Halverson, Hassett, Pacheco, Schweber, Steinkuehler; Assistant Professors L. Berland, M. Berland, Braaten, Ghouseini, Prasad, Russ, Wager, Wright; Affiliate Professors R. Halverson, Nathan, Uttal, Fujita Geyer, Zhang. For more information about respective members of the faculty, see People (<http://ci.education.wisc.edu/ci/people/faculty>) on the department website.

## CURRICULUM AND INSTRUCTION, DOCTORAL MINOR

### REQUIREMENTS

Doctoral students in another UW–Madison program who desire a doctoral minor in the Department of Curriculum and Instruction should seek and enlist a faculty member in the Department of Curriculum and Instruction to serve as their doctoral minor advisor. Twelve credits are required for a doctoral minor in the Department of Curriculum and Instruction. At least 6 of these credits must be in substantive, graduate-level courses taken in the UW–Madison Department of Curriculum and Instruction. (Substantive, graduate-level courses excludes credits earned through independent reading, independent study, research, and thesis.) With the approval of the minor advisor, the remaining 6 credits may be met through an approved transfer of credits in substantive, graduate-level courses completed at other institutions. A maximum of 3 credits of the total 12-credit minor requirement may be met through graduate-level independent reading done in the UW–Madison Department of Curriculum and Instruction.

## PEOPLE

**Faculty:** Professors Graue (chair), Feinstein (graduate program chair), Apple, Baker, Compton-Lilly, Gomez, Grant, Hawkins, Hess, Ivey, James, Knuth, Koza, Ladson-Billings, Popkewitz, Squire, Tochon, Winn; Associate Professors Dobbs, Ellis, E. Halverson, Hassett, Pacheco, Schweber, Steinkuehler; Assistant Professors L. Berland, M. Berland, Braaten, Ghouseini, Prasad, Russ, Wager, Wright; Affiliate

Professors R. Halverson, Nathan, Uttal, Fujita Geyer, Zhang. For more information about respective members of the faculty, see People (<http://ci.education.wisc.edu/ci/people/faculty>) on the department website.

## CURRICULUM AND INSTRUCTION, M.S.

### MASTER'S DEGREE PROGRAMS

Details of requirements and procedures pertaining to master's degree study in the department are described in the department's M.S. Program Handbook (<https://ci.education.wisc.edu/docs/WebDispenser/c-and-i-documents/ms-handbook-2014.pdf?sfvrsn=2>). Because master's degree students are personally responsible for learning about and following department requirements and procedures, they should familiarize themselves with this document. The handbook is also available at the department office. Master's degree students are also personally responsible for learning about and following Graduate School policies. The curriculum and instruction graduate program office offers an informational meeting for new graduate students at the beginning of each semester.

### M.S. IN CURRICULUM AND INSTRUCTION

The M.S. in curriculum and instruction prepares students for advanced work in education. In some cases, work leading to the degree prepares students to enter a new career as an educational specialist (e.g., curriculum developer, content-area specialist, school department head, curriculum supervisor, early childhood specialist, ESL or bilingual teacher, or reading teacher). In other cases, it prepares students to perform at a higher level in their existing job. In yet other cases, it prepares students for Ph.D. study. Motivations for master's degree work include professional updating, maintenance of accreditation, acquisition of new perspectives and skills, development of specialized knowledge, preparation to work with student teachers, preparation for leadership among teachers, and preparation for advanced graduate study. Whatever their personal reasons for pursuing the degree, master's degree students should expect both an atmosphere of intellectual inquiry and the serious academic standards befitting a graduate research program in curriculum and instruction.

### M.S. IN CURRICULUM AND INSTRUCTION —NAMED OPTIONS (TEACHER CERTIFICATION)

A master of science with secondary teacher certification is offered as a master of science in curriculum and instruction with named options in English, mathematics, science, and social studies. Additional information may be found at [uwteach.com](http://uwteach.com) (<http://uwteach.com>). Elementary teacher certification is not available through the Department of Curriculum and Instruction master's program. Students who desire elementary teacher certification should contact Education Academic Services (<https://www.education.wisc.edu/soe/academics/undergraduate-students/academic-advising>).

This streamlined, graduate-level program prepares students for a teaching license both in a specific content area at the secondary level (English, Math, Science, or Social Studies) and to work with English language learners (ESL certification). To learn more see the C&I website (<https://ci.education.wisc.edu>) or [uwteach.com](http://uwteach.com) (<http://uwteach.com>).

The M.S. program with named options in Secondary English Education, Secondary Math Education, Secondary Science Education, and Secondary Social Studies accepts applications starting the summer of the preceding year, until the program reaches its capacity. A new cohort begins each summer.

The program covers two summers and an intervening academic year. Throughout this time span, students take graduate-level courses and engage in fieldwork associated with those courses. In addition, students must complete a master's project.

### FUNDING

The department nominates eligible incoming M.S. and Ph.D. students for an Advanced Opportunity Fellowship (AOF). Eligibility criteria for these fellowships can be found at the Graduate School's Funding Information page. The department nominates its most academically competitive Ph.D. candidates for the *Social Studies Division Fellowships*. Nominees are considered in January by a committee of the Department of Curriculum and Instruction. For an applicant to be considered in this competition, the graduate-application file should be complete by December 1.

University-wide information about financial aid for graduate students is available through the Office of Student Financial Aid (<http://www.finaid.wisc.edu>). Additional information about financing graduate education is available from the Graduate School's Types of Funding Available (<https://grad.wisc.edu/studentfunding/types>) page.

The department itself does not award fellowships or scholarships; however, a limited number of teaching assistantships, project assistantships, research assistantships, and program assistantships are available either in the department or through faculty research projects in the Wisconsin Center for Education Research (<http://www.wcer.wisc.edu>). These assistantships are awarded to qualified, full-time graduate students and typically involve 10–20 hours of professional work each week, usually in close collaboration with one or more professors. Assistantships provide a stipend and may include the cost of tuition (excluding *segregated fees*).

Applications for assistantships in the department can be downloaded here (<http://ci.education.wisc.edu/docs/c-and-i-documents/taapplication.pdf>) or requested from the Academic Department Manager, 210A Teacher Education Building, 608-263-4602, [jzander@education.wisc.edu](mailto:jzander@education.wisc.edu). Students should also check with individual faculty members about opportunities for assistantships in the department. Any teaching, project, or program assistant in the department must carry a full course load of 8–15 graduate-level credits and make satisfactory progress toward the graduate degree.

### REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

## MASTER'S DEGREES

M.S., and M.S. with available named options in Secondary English Education, Secondary Mathematics Education, Secondary Science Education, and Secondary Social Studies Education

## MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

M.S.: 30 credits

M.S. with named option: 51 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

M. S.: 21 credits

M.S. with named option: 51 credits

## MINIMUM GRADUATE COURSEWORK REQUIREMENT

100% of the credits taken at UW–Madison must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.S.: With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. This coursework does not appear on a UW–Madison transcript nor count toward graduate career GPA. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.S. with named option: Students may not transfer in credits of graduate course from other institutions.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

M.S.: No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

M.S. with named option: No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

M.S.: With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.S. with named option: No credits as a UW–Madison University Special student are allowed to count toward the degree.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

M.S.: None required.

M.S. with named option: Requirements vary by named option; see program website.

## OVERALL GRADUATE GPA REQUIREMENT

M.S.: 3.25 GPA required.

M.S. with named option: 3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Students must earn a B average or above in all coursework.

## PROBATION POLICY

The status of a student can be one of two options:

1. Satisfactory progress (progressing according to standards)
2. Unsatisfactory progress (not progressing according to standards; permitted to enroll with specific plan with dates and deadlines in place in regard to removal of unsatisfactory progress to avoid dismissal from the program).

## ADVISOR

All students are required to have an advisor. An advisor is assigned to all incoming students. To ensure that they are making satisfactory progress toward a degree, students should meet with their advisor on a regular basis.

The advisor serves as the thesis advisor. Students can be suspended from the program, if they do not have an advisor.

## ASSESSMENTS AND EXAMINATIONS

M. S.: thesis & examination required.

M.S. with named option: requirements vary by named option; please see the program website

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements other than the English proficiency required for admission.

## ADMISSIONS

All applicants should apply online at Graduate School Online Application (<https://grad.wisc.edu/apply>). Official transcripts should be sent **in duplicate** to the

Curriculum and Instruction Graduate Program Office  
225 North Mills Street  
Madison WI 53706-1707

Printed letters of recommendation may also be sent to this address, but persons writing recommendations may find it faster and more convenient to submit their recommendations electronically to the Graduate School through the online application. Any additional documentation required specifically by the Department of Curriculum and Instruction should be uploaded to the application or the supplemental application.

## MASTER'S APPLICANTS

Official transcripts from all previous post-secondary study and three letters of recommendation are required for all master's degree applicants. Letters of recommendation should be written by persons who are qualified to judge the potential of the applicant as a graduate student. Requests to have letters of recommendation submitted electronically are made as part of the online application for admission. Letters may also be sent directly to the Department of Curriculum and Instruction.

All master's degree applicants are required to submit a detailed statement of reasons for graduate study. This statement should indicate the applicant's primary area of interest, professional objectives, career goals, and why the applicant is interested in pursuing the master's degree in the Department of Curriculum and Instruction. This information is used to gauge the appropriateness of the applicant's program goals in relation to the department's mission and to identify prospective advisors whose research interests match those of the applicant. If an applicant's statement fails to persuade a faculty member to serve as the graduate advisor, the applicant will be refused admission; it is therefore important that this statement be detailed, well-written, and matched to specific areas of study that are available in the department. If an applicant would like for a particular professor to serve as graduate advisor, the applicant should identify the desired advisor in the statement of reasons for graduate study.

All master's degree applicants are required to submit a resume or curriculum vitae (cv).

For the traditional C&I master's program, if the grade point average (GPA) of an applicant's last 60 semester-hours of undergraduate course work is below 3.0 (on a 4-point scale), the applicant must also take the *Graduate Record Exam* (GRE) general test and have an official report of the scores sent electronically from the Educational Testing Service (ETS) to UW-Madison (institution code: 1846).

The *Graduate Record Exam* (GRE) is required if one is applying for the M.S. with named options in Secondary English Education, Secondary Mathematics Education, Secondary Science Education, and Secondary Social Studies Education.

International applicants should note additional requirements that are described in the *International Applications* section, below.

## INTERNATIONAL APPLICANTS

The department has a long and successful history of working with graduate students from around the world. Over the last 25 years, approximately 130 M.S. degrees were earned by international students; students in this group came from 37 countries. During the same period, approximately 150 Ph.D. degrees were earned by international students in the department; students in this group came from 43 countries. Qualified international students add to the enrichment of the social and intellectual environment for all faculty and students.

In accord with Graduate School policy, applicants whose native language is not English or whose undergraduate instruction was not in English must provide official scores from the Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS), or the Michigan English Language Assessment Battery (MELAB). An admitted applicant whose internet-based TOEFL (iBT) score is below 92, IELTS score is below 7, or MELAB score is below 82 must take an

English assessment test upon arrival. They must then register for any English as a Second Language (ESL) courses that are recommended.

## EXPECTED BACKGROUND IN PROFESSIONAL EDUCATION

(Does not apply to M.S. with named options in Secondary English Education, Secondary Mathematics Education, Secondary Science Education, and Secondary Social Studies Education applicants)

A professional background in education (typically, as a certified teacher) is a prerequisite for most graduate areas of study in the Department of Curriculum and Instruction. Applicants to certain areas of study within the department are sometimes admitted without teacher certification, but they are nevertheless required to have taken at least 12 credits in professional education courses. Equivalent courses taught outside a school of education are permissible, so long as an express focus on professional education is judged by the graduate program chair to be evident. At least 6 credits must be in foundations of education (e.g., educational anthropology, educational sociology, history of education, human development, human learning, philosophy of education).

Applicants lacking this background may be *admitted with deficiencies*. They will then be required to take a specified number of credits in the areas of deficiency, in addition to the course work ordinarily required in the graduate program. Courses taken to remove deficiencies should be chosen in consultation with the graduate advisor, and each of these courses must be taken for a letter grade (not pass/fail). These courses may be carried concurrently with regular graduate courses; but, being additional requirements, they do not count toward requirements of the graduate program.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices. Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Graue (chair), Feinstein (graduate program chair), Apple, Baker, Compton-Lilly, Gomez, Grant, Hawkins, Hess, Ivey, James, Knuth, Koza, Ladson-Billings, Popkewitz, Squire, Tochon, Winn; Associate Professors Dobbs, Ellis, E. Halverson, Hassett, Pacheco, Schweber, Steinkuehler; Assistant Professors L. Berland, M. Berland, Braaten, Ghousseini, Prasad, Russ, Wager, Wright; Affiliate Professors R. Halverson, Nathan, Uttal, Fujita Geyer, Zhang. For more

information about respective members of the faculty, see People (<http://ci.education.wisc.edu/ci/people/faculty>) on the department website.

## CURRICULUM AND INSTRUCTION, PH.D.

The goals of doctoral study in the Department of Curriculum and Instruction are to help students develop abilities for research in the field of curriculum and instruction, imbuing them with a distinctive theoretical and critical edge; develop expertise in one of the department's areas of study, listed previously; acquire greater competence in curriculum evaluation and development; improve understanding of the teaching–learning process; gain depth and breadth of knowledge in related academic fields; and build a broadened professional background in areas related to curriculum and instruction, such as administration, counseling, educational psychology, supervision, and the anthropology, history, philosophy, and sociology of education.

Ph.D. study in the department is research-oriented. It prepares students for different forms of intellectual leadership in education including research, teacher education and other teaching in higher education, and leadership positions in educational agencies. These different forms of leadership are not mutually exclusive, but the relative emphasis given to each varies among students and areas of study.

Details of requirements and procedures pertaining to Ph.D. study in the department are described in the department's Ph.D. Degree Program Handbook ([https://ci.education.wisc.edu/docs/WebDispenser/c-and-i-documents/phd\\_handbook-2014.pdf?sfvrsn=2](https://ci.education.wisc.edu/docs/WebDispenser/c-and-i-documents/phd_handbook-2014.pdf?sfvrsn=2)). Doctoral students are responsible for learning about and following department requirements and procedures; they should therefore familiarize themselves with this document, a printed copy of which can be picked up at the curriculum and instruction graduate program office. Ph.D. students are also responsible for learning about and following Graduate School policies. The curriculum and instruction graduate program office offers an informational meeting for new graduate students at the beginning of each semester.

## FUNDING

The department nominates eligible incoming M.S. and Ph.D. students for an Advanced Opportunity Fellowship (AOF). Eligibility criteria for these fellowships can be found at the Graduate School's Funding Information page. The department nominates its most academically competitive Ph.D. candidates for the *Social Studies Division Fellowships*. Nominees are considered in January by a committee of the Department of Curriculum and Instruction. For an applicant to be considered in this competition, the graduate-application file should be complete by December 1.

University-wide information about financial aid for graduate students is available through the Office of Student Financial Aid (<http://www.finaid.wisc.edu>). Additional information about financing graduate education is available from the Graduate School's Types of Funding Available (<https://grad.wisc.edu/studentfunding/types>) page.

The department itself does not award fellowships or scholarships; however, a limited number of teaching assistantships, project assistantships, research assistantships, and program assistantships are available either in the department or through faculty research projects in the Wisconsin Center for Education Research ([\[www.wcer.wisc.edu\]\(http://www.wcer.wisc.edu\)\). These assistantships are awarded to qualified, full-time graduate students and typically involve 10–20 hours of professional work each week, usually in close collaboration with one or more professors. Assistantships provide a stipend and may include the cost of tuition \(excluding \*segregated fees\*\).](http://</a></p>
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Applications for assistantships in the department can be downloaded here (<http://ci.education.wisc.edu/docs/c-and-i-documents/taapplication.pdf>) or requested from the Academic Department Manager, 210A Teacher Education Building, 608-263-4602, [jzander@education.wisc.edu](mailto:jzander@education.wisc.edu). Students should also check with individual faculty members about opportunities for assistantships in the department. Any teaching, project, or program assistant in the department must carry a full course load of 8–15 graduate-level credits and make satisfactory progress toward the graduate degree.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

36 credits beyond the master's before taking the preliminary examination

### MINIMUM GRADUATE COURSEWORK REQUIREMENT

36 credits out of 51 total credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>). Those 36 credits must be completed before taking the preliminary examination.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No prior coursework from other institutions can be counted in the 36 credits required before taking the preliminary examination. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison



University Special student. Coursework earned five or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

One required course, CURRIC 712 Introduction to Curriculum and Instruction: Research and resources

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.25 GPA required

## OTHER GRADE REQUIREMENTS

Ph.D. students must earn a B average or above in all coursework.

## PROBATION POLICY

The status of a student can be one of two options:

1. Satisfactory progress (progressing according to standards)
2. Unsatisfactory progress (not progressing according to standards; permitted to enroll with specific plan with dates and deadlines in place in regard to removal of unsatisfactory progress to avoid dismissal from the program).

## ADVISOR

All students are required to have an advisor. An advisor is assigned to all incoming students. To ensure they are making satisfactory progress toward a degree, students should meet with their advisor on a regular basis.

The advisor serves as the thesis advisor. Students can be suspended from the program, if they do not have an advisor.

## ASSESSMENTS AND EXAMINATIONS

Doctoral students must pass the preliminary examination within five yrs of starting the program.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within 5 years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements other than the English proficiency required for admission.

## ADMISSIONS

All applicants should apply online at Graduate School Online Application (<https://grad.wisc.edu/apply>). Official transcripts should be sent **in duplicate** to the

Curriculum and Instruction Graduate Program Office  
225 North Mills Street  
Madison WI 53706-1707

Printed letters of recommendation may also be sent to this address, but persons writing recommendations may find it faster and more convenient to submit their recommendations electronically to the Graduate School through the online application. Any additional documentation required specifically by the Department of Curriculum and Instruction should be uploaded to the application or the supplemental application.

## PH.D. APPLICANTS

Ph.D. applicants are required to supplement the application with the items enumerated below.

1. **Official transcripts.** Official transcripts from all previous postsecondary study are required for all Ph.D. applicants. These should be mailed directly to the Department of Curriculum and Instruction mailing address.
2. **Graduate Record Exam (GRE) general test.** Ph.D. applicants should have an official report of their Graduate Record Exam (GRE) general test scores sent electronically from the Educational Testing Service (ETS) to UW–Madison (institution code: 1846).
3. **Evidence of writing ability.** Ph.D. applicants are required to provide evidence of their writing ability by submitting a writing sample (master's thesis, academic paper from a graduate course, a journal article, or any other writing which the applicant believes can be used to judge writing ability). This should be uploaded to the supplemental application.
4. **Three letters that include appraisal of academic competence.** Ph.D. applicants are required to have three letters of reference assessing their academic and professional competence. Letters of reference written for teachers ordinarily include an evaluation of their professional competence, and the department does consider that information. However, the department needs letters that also give a knowledgeable appraisal of the applicant's academic competence. A student's former professors are usually best able to provide this, so the department prefers letters from them. Printed letters of recommendation may be sent directly to the Curriculum and Instruction Graduate Program Office, but persons writing recommendations may find it faster and more convenient to submit their recommendations electronically through the online application.
5. **Statement of reasons for doctoral study.** Each Ph.D. applicant is required to submit a detailed statement of reasons for doctoral study. The statement should indicate the applicant's primary area of interest, professional objectives, career goals, and why the applicant is interested in pursuing a research degree in the Department of Curriculum and Instruction. This information is used to gauge the appropriateness of the applicant's program goals in relation to the department's mission and to identify prospective advisors whose research interests match those of the applicant. If an applicant's statement fails to persuade a faculty member to serve as the graduate advisor, the applicant will be refused admission; it is therefore important that this statement be detailed, well-written,

and matched to specific areas of study that are available in the department. If an applicant would like for a particular professor to serve as graduate advisor, the applicant should identify the desired advisor in the statement of reasons for graduate study.

#### 6. Resume or curriculum vitae (cv).

*International applicants should note additional requirements that are described in the International Applications section, below.*

## INTERNATIONAL APPLICANTS

The department has a long and successful history of working with graduate students from around the world. Over the last 25 years, approximately 130 M.S. degrees were earned by international students; students in this group came from 37 countries. During the same period, approximately 150 Ph.D. degrees were earned by international students in the department; students in this group came from 43 countries. Qualified international students add to the enrichment of the social and intellectual environment for all faculty and students.

In accord with Graduate School policy, applicants whose native language is not English or whose undergraduate instruction was not in English must provide official scores from the Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS), or the Michigan English Language Assessment Battery (MELAB). An admitted applicant whose internet-based TOEFL (iBT) score is below 92, IELTS score is below 7, or MELAB score is below 82 must take an English assessment test upon arrival. They must then register for any English as a Second Language (ESL) courses that are recommended.

## EXPECTED BACKGROUND IN PROFESSIONAL EDUCATION

(Does not apply to M.S. with named options in Secondary English Education, Secondary Mathematics Education, Secondary Science Education, and Secondary Social Studies Education applicants)

A professional background in education (typically, as a certified teacher) is a prerequisite for most graduate areas of study in the Department of Curriculum and Instruction. Applicants to certain areas of study within the department are sometimes admitted without teacher certification, but they are nevertheless required to have taken at least 12 credits in professional education courses. Equivalent courses taught outside a school of education are permissible, so long as an express focus on professional education is judged by the graduate program chair to be evident. At least 6 credits must be in foundations of education (e.g., educational anthropology, educational sociology, history of education, human development, human learning, philosophy of education). Applicants lacking this background may be *admitted with deficiencies*. They will then be required to take a specified number of credits in the areas of deficiency, in addition to the course work ordinarily required in the graduate program. Courses taken to remove deficiencies should be chosen in consultation with the graduate advisor, and each of these courses must be taken for a letter grade (not pass/fail). These courses may be carried concurrently with regular graduate courses; but, being additional requirements, they do not count toward requirements of the graduate program.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Graue (chair), Feinstein (graduate program chair), Apple, Baker, Compton-Lilly, Gomez, Grant, Hawkins, Hess, Ivey, James, Knuth, Koza, Ladson-Billings, Popkewitz, Squire, Tochon, Winn; Associate Professors Dobbs, Ellis, E. Halverson, Hassett, Pacheco, Schweber, Steinkuehler; Assistant Professors L. Berland, M. Berland, Braaten, Ghouseini, Prasad, Russ, Wager, Wright; Affiliate Professors R. Halverson, Nathan, Uttal, Fujita Geyer, Zhang. For more information about respective members of the faculty, see People (<http://ci.education.wisc.edu/ci/people/faculty>) on the department website.

## INTERNATIONAL EDUCATION, DOCTORAL MINOR

Doctoral students may pursue an Option A minor in international education. Courses are selected from across the School of Education departments. Participating departments offering courses toward this Option A minor are the Department of Curriculum and Instruction, the Department of Educational Leadership and Policy Analysis, the Department of Educational Policy Studies, the Department of Counseling Psychology, the Department of Dance, and the Department of Art.

## REQUIREMENTS

The 12-credit minor in international education is composed of graduate-level international education courses. These courses comprise a minimum of 50 percent of content devoted to international topics/issues. Coursework for the minor must be distributed as follows: at least one 3-credit course with an emphasis on disciplinary theory or research; three additional courses at the 500 level or above. Students are expected to achieve a B or better in four international education courses at the 500 level or above in order to qualify for the international education minor.

Students choosing this minor select, in consultation with the chair of the School of Education Global Education Committee (currently Maggie Hawkins) and an advisor from their home department, education-related courses with significant international content. This minor must be

approved in accordance with the student's home department procedures. Forms for Option A minors are available in students' home departments.

## PEOPLE

**Faculty:** Professors Hawkins (Curriculum and Instruction; current contact for the minor), Wang (Educational Leadership and Policy Analysis), Bal (RPSE), Kaplan (Educational Psychology), James (Curriculum and Instruction), Kendall (Educational Policy Studies), Walbarger (Kinesiology), Skog (Dance), Hilyard (Art)

## QUALITATIVE RESEARCH METHODOLOGY IN EDUCATION, DOCTORAL MINOR

### REQUIREMENTS

Doctoral students may seek a doctoral minor in qualitative research methodology in education. For information about the minor program, see the minor's website (<http://soequal.wceruw.org/minorReqs.html>).

## PEOPLE

Professors B. Graue (chair), E. Halverson, S. Schweber, L. Berland, R. Russ, T. Wright, L. Bartlett, S. Lee, R. Winkle-Wagler

## SCIENCE EDUCATION, DOCTORAL MINOR

## DAIRY SCIENCE

**Administrative Unit:** Dairy Science

**College/School:** College of Agricultural and Life Sciences

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The Department of Dairy Science offers one of the most comprehensive dairy science graduate programs in the country. Faculty interests and research funding in dairy science span diverse areas of focus. Fundamental training in basic science fields related to these phases of dairy science is required. Minimum admissions requirements of the Graduate School must be met. Specific degree requirements are available from the department.

Students are offered a challenging research and educational opportunity in well-equipped laboratories with modern instrumentation. Students in dairy cattle nutrition may work in collaboration with laboratories of the U.S. Dairy Forage Research Center as well as those of the dairy science department. Dairy cattle at four locations are maintained by the department for both intensive and extensive experimental work.

Research is directed toward gaining greater understanding of the biology of dairy species with emphasis on dairy cattle, and improving usefulness of these species to society by modifying milk composition, improving animal health, assessing environmental impact, and enhancing economic efficiency. Current research emphases include developing and using molecular markers and genome maps to improve accuracy of selection and speed the rate of genetic improvement; developing and applying statistical methods for estimating genetic merit of individual animals and genetic parameters of populations from performance records; studying digestive and metabolic processes in lactating ruminants to improve production efficiency and health; enhancing utilization of forage nutrients by high-producing cows through modifications of the forage plants, harvesting and storage methods, and supplemental ration ingredients; development of reproduction management programs that optimize facility and profitability of dairy farms; understanding regulation of ovarian function and the regulation of fertility in lactating dairy cows; developing and evaluating milking, feeding, record-keeping, and decision and organizational systems that contribute to profitable dairy enterprises in a changing dairy economy; management factors affecting animal health and well-being.

About one-half of the department graduate students are domestic students, with two-thirds of those students Wisconsin residents, one-third out-of-state students, and one-half of the graduate students are international students. This diversity brings a national and global perspective to research, instruction, extension, and cultural understanding.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Dairy Science, Doctoral Minor (p. 220)
- Dairy Science, M.S. (p. 220)
- Dairy Science, Ph.D. (p. 222)

## PEOPLE

**Faculty:** Professors Weigel (chair), Armentano, Combs, Fricke, Gianola, Ruegg, Shaver, Wattiaux, Wiltbank; Associate Professor Cabrera; Assistant Professors Hernandez, White; Affiliate Professors Cook, Dopfer, Kirkpatrick, Oetzel, Ollivett, Reed, Reinemann

## DAIRY SCIENCE, DOCTORAL MINOR

## DAIRY SCIENCE, M.S.

Two plans are available for graduate work leading to the master of science degree in dairy science. Students who plan to continue for the Ph.D. degree, or who expect to enter fields of work involving research, should take the M.S. degree in research. Students who wish to obtain more specialized training, but are not planning for a research career, may pursue a degree strictly through course work.

The Department of Dairy Science offers one of the most comprehensive dairy science graduate programs in the country. Faculty interests and research funding in dairy science span diverse areas of focus. Fundamental training in basic science fields related to these phases of dairy science is required. Minimum admissions requirements of the Graduate School must be met. Specific degree requirements are available from the department.

Students are offered a challenging research and educational opportunity in well-equipped laboratories with modern instrumentation. Students in dairy cattle nutrition may work in collaboration with laboratories of the U.S. Dairy Forage Research Center as well as those of the dairy science department. Dairy cattle at four locations are maintained by the department for both intensive and extensive experimental work.

Research is directed toward gaining greater understanding of the biology of dairy species with emphasis on dairy cattle, and improving usefulness of these species to society by modifying milk composition, improving animal health, assessing environmental impact, and enhancing economic efficiency. Current research emphases include developing and using molecular markers and genome maps to improve accuracy of selection and speed the rate of genetic improvement; developing and applying statistical methods for estimating genetic merit of individual animals and genetic parameters of populations from performance records; studying digestive and metabolic processes in lactating ruminants to improve production efficiency and health; enhancing utilization of forage nutrients by high-producing cows through modifications of the forage plants, harvesting and storage methods, and supplemental ration ingredients; development of reproduction management programs that optimize facility and profitability of dairy farms; understanding regulation of ovarian function and the regulation of fertility in lactating dairy cows; developing and evaluating milking, feeding, record-keeping, and decision and organizational systems that contribute to profitable dairy enterprises in a changing dairy economy; management factors affecting animal health and well-being.

About one-half of the department graduate students are domestic students, with two-thirds of those students Wisconsin residents, one-third out-of-state students, and one-half of the graduate students are international students. This diversity brings a national and

global perspective to research, instruction, extension, and cultural understanding.

## FUNDING

Research assistantships are awarded to well-qualified students on a competitive basis. Around 70 percent of M.S. and Ph.D. candidates in dairy science are supported by research assistantships.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available research, and course tracks

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

Courses must be agreed upon by the student's graduate committee members and approved by department certification committee.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

A minimum of 16 graduate credits must be taken while a graduate student at UW-Madison.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree may count toward the M.S. degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Courses taken post-B.S. as a University Special student do not automatically count toward a graduate degree. A maximum of 15 credits may be allowed for courses numbered 300 or above if difference in tuition is paid.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

No specific courses required.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

No other specific grade requirements.

### PROBATION POLICY

In compliance with Graduate School policy, listed below, and at discretion of M.S. committee.

If students were admitted on probation and they satisfy the conditions outlined at the time of admission, probationary status will be removed automatically. Once their studies have begun, students are expected to make satisfactory progress toward their degree. Students must be in good academic standing with the Graduate School, their program, and their advisor. The Graduate School regularly reviews the record of any student who received grades of BC, C, D, F, or I in graduate-level courses (300 or above), or grades of U in research and thesis. This review could result in academic probation with a hold on future enrollment, and the student may be suspended from graduate studies.

The Graduate School may also put students on probation for incompletes not cleared within one term. All incomplete grades must be resolved before a degree is granted.

### ADVISOR / COMMITTEE

M.S.—course track requirements:

Successful completion of the following items. These must be completed in a timely fashion or the student will not be allowed to continue registration.

- Form an M.S. mentor committee (by end of first semester).
- Meet with M.S. committee to approve plan for coursework and review of literature (by end of second semester)

M.S.—research track requirements:

Successful completion of the following items. These must be completed in a timely fashion or the student will not be allowed to continue registration. Please note that minimum requirements are provided, however successful completion of the M.S. degree also requires making a research contribution to the scientific literature.

- Form an M.S. mentor committee (by end of first semester).
- Meet with the M.S. committee. Approve plan for coursework and immediate research plans (by end of second semester)

### ASSESSMENTS AND EXAMINATIONS

M.S.—course track: Complete coursework and review of literature (documentation of completion is required before M.S. defense) and final defense and examination.

M.S.—research track: Complete coursework and M.S. research (documentation of completion is required before M.S. defense) and final defense and examination.

### TIME CONSTRAINTS

Form an M.S. mentor committee (by end of first semester).

Meet with M.S. committee to approve plan for coursework and review of literature (by end of second Semester)

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Undergraduate majors in biology, biochemistry, or genetics, as well as dairy or animal science, provide excellent background for graduate study in dairy science. Regardless of major, preparation should include biology (molecular, cellular, and population), physiology, chemistry (general and organic), mathematics (through calculus), and physics.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- To gain knowledge of current research in the specific area of animal biology and management that the student is working with during their master's degree.
- To develop the ability to critique scientific research including evaluation of the theories, research methods, statistical analyses of results, and discussion of results in relation to other studies in the student's field of interest.
- To understand the primary field of study from a biological and practical context.
- Demonstrates the ability to select and utilize the most appropriate methodologies and practices to test research hypotheses.
- Demonstrates the ability to communicate science in their field both orally and in a written form.

### PROFESSIONAL CONDUCT

- Recognizes and fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Weigel (chair), Armentano, Combs, Fricke, Gianola, Ruegg, Shaver, Wattiaux, Wiltbank; Associate Professor Cabrera; Assistant Professors Hernandez, White; Affiliate Professors Cook, Dopfer, Kirkpatrick, Oetzel, Ollivett, Reed, Reinemann

## DAIRY SCIENCE, PH.D.

Training for the Ph.D. degree prepares the candidate for a career of university teaching, research, and extension; for research in industrial or government laboratories; or for technical service in industry. The department office maintains specific information concerning career placements.

The greatest share of Ph.D. training will be achieved through selection and pursuit of a research project in a phase of dairy science in which the

student has a strong interest. Students exercise individual initiative in the planning and execution of research projects. Because of the long-term nature of large-animal research, every effort is made to start students on research problems early in their graduate careers.

A minor in dairy science is available to doctoral students majoring in other departments. Contact the department for specific requirements.

The Department of Dairy Science offers one of the most comprehensive dairy science graduate programs in the country. Faculty interests and research funding in dairy science span diverse areas of focus. Fundamental training in basic science fields related to these phases of dairy science is required. Minimum admissions requirements of the Graduate School must be met. Specific degree requirements are available from the department.

Students are offered a challenging research and educational opportunity in well-equipped laboratories with modern instrumentation. Students in dairy cattle nutrition may work in collaboration with laboratories of the U.S. Dairy Forage Research Center as well as those of the dairy science department. Dairy cattle at four locations are maintained by the department for both intensive and extensive experimental work.

Research is directed toward gaining greater understanding of the biology of dairy species with emphasis on dairy cattle, and improving usefulness of these species to society by modifying milk composition, improving animal health, assessing environmental impact, and enhancing economic efficiency. Current research emphases include developing and using molecular markers and genome maps to improve accuracy of selection and speed the rate of genetic improvement; developing and applying statistical methods for estimating genetic merit of individual animals and genetic parameters of populations from performance records; studying digestive and metabolic processes in lactating ruminants to improve production efficiency and health; enhancing utilization of forage nutrients by high-producing cows through modifications of the forage plants, harvesting and storage methods, and supplemental ration ingredients; development of reproduction management programs that optimize facility and profitability of dairy farms; understanding regulation of ovarian function and the regulation of fertility in lactating dairy cows; developing and evaluating milking, feeding, record-keeping, and decision and organizational systems that contribute to profitable dairy enterprises in a changing dairy economy; management factors affecting animal health and well-being.

About one-half of the department graduate students are domestic students, with two-thirds of those students Wisconsin residents, one-third out-of-state students, and one-half of the graduate students are international students. This diversity brings a national and global perspective to research, instruction, extension, and cultural understanding.

## FUNDING

Research assistantships are awarded to well-qualified students on a competitive basis. Around 70 percent of M.S. and Ph.D. candidates in dairy science are supported by research assistantships.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

Courses must be agreed upon by the student's graduate committee members and approved by department certification committee.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

A minimum of 32 of the total of 51 credits must be taken while a graduate student at UW-Madison.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree may count towards the Ph.D. degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Courses taken post-B.S. as a University Special student do not automatically count toward a graduate degree. A maximum of 15 credits may be allowed for courses numbered 300 or above if difference in tuition is paid.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

No specific courses required.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

No other specific grade requirements.

### PROBATION POLICY

In compliance with Graduate School policy, listed below, and at discretion of Ph.D. committee.

If students were admitted on probation and they satisfy the conditions outlined at the time of admission, probationary status will be removed automatically. Once their studies have begun, students are expected to make satisfactory progress toward their degree.

Students must be in good academic standing with the Graduate School, their program, and their advisor. The Graduate School regularly reviews the record of any student who received grades of BC, C, D, F, or I in graduate-level courses (300 or above), or grades of U in research and thesis. This review could result in academic probation with a hold on future enrollment, and the student may be suspended from graduate studies.

The Graduate School may also put students on probation for incompletes not cleared within one term. All incomplete grades must be resolved before a degree is granted.

### ADVISOR / COMMITTEE

To complete the Ph.D. degree in the Department of Dairy Science, successful completion of the following items is required. These must be completed in a timely fashion or the student will not be allowed to continue registration. Please note that minimum requirements are provided, however successful completion of the Ph.D. requires achievement of the standing of demonstrated scientist, through your Ph.D. program and by making a significant research contribution to the scientific literature.

- Form a Ph.D. mentor and examination committee (by end of first semester).
- Meet with the Ph.D. committee. Approve coursework and immediate research plans (by end of second semester)

### ASSESSMENTS AND EXAMINATIONS

Schedule preliminary examination and file request for preliminary examination (by end of fourth semester).

Complete written preliminary examination; complete oral preliminary examination (by end of fifth semester). If passed, warrant should be signed and returned to the Graduate School. Student will be a dissertator.

Complete research and thesis. Regular meetings with the committee are expected. Request for final examination (includes documentation that exam requirements have been met). Final defense and examination.

### TIME CONSTRAINTS

Form a Ph.D. mentor and examination committee (by end of first semester).

Meet with the Ph.D. committee. Approve coursework and immediate research plans (by end of second semester)

Schedule preliminary examination and file request for preliminary examination (by end of fourth semester).

Complete written preliminary examination; complete oral preliminary examination (by end of fifth semester).

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements

## ADMISSIONS

Undergraduate majors in biology, biochemistry, or genetics, as well as dairy or animal science, provide excellent background for graduate study in dairy science. Regardless of major, preparation should include biology (molecular, cellular, and population), physiology, chemistry (general and organic), mathematics (through calculus), and physics.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- To gain in-depth knowledge and understanding of current research in the specific area of animal biology and management that the student is working with during their Ph.D. degree.
- To develop the ability to critique scientific research including evaluation of the theories, research methods, statistical analyses of results, and discussion of results in relation to other studies in the student's field of interest.
- To understand the primary field of study from a biological and practical context.
- Demonstrates the ability to validly develop and execute a research study including development of a scientific hypothesis, selection and utilization of the most appropriate methodologies and practices to test the research hypothesis, valid statistical analysis of results, and clear, scientifically valid discussion of research results.
- Demonstrates the ability to communicate science in their field both orally and in a written form.

### PROFESSIONAL CONDUCT

- Recognizes and fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Weigel (chair), Armentano, Combs, Fricke, Gianola, Ruegg, Shaver, Wattiaux, Wiltbank; Associate Professor Cabrera; Assistant Professors Hernandez, White; Affiliate Professors Cook, Dopfer, Kirkpatrick, Oetzel, Ollivett, Reed, Reinemann



# ECONOMICS

**Administrative Unit:** Economics

**College/School:** College of Letters & Science

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

**Named Options:** Graduate Foundations (M.S.)

**Specializations:** Econometrics, Industrial Organization, International Economics, Labor Economics, Macroeconomics and Monetary Economics, Microeconomic Theory, or Public Economics

The economics department offers both master's and doctoral programs of study.

## PLACEMENT

The department has a well-organized placement service. Each year a faculty member functions as the placement officer. He or she is assisted by the placement assistant who coordinates the sending of resumes and letters of recommendation, makes available job vacancy information, and offers general guidance. Each job market candidate gives a regular faculty research seminar on his or her primary research paper; these seminars are typically widely attended by faculty and students and provide a rigorous "test run" for the job market paper. To prepare for the job market interviews mostly conducted at the winter meetings of the American Economic Association, all students are given mock "job market interviews" by faculty members. Students also receive extensive help from their primary advisor, who in addition to providing general counsel during the process of job search, typically is instrumental in contacting colleagues at other universities, or in bringing the student to the attention of the extensive network of former Wisconsin Ph.D.'s employed in universities, colleges, government, and the private sector.

Students also benefit from the fact that many government agencies, including the Board of Governors, the World Bank, the International Monetary Fund, and several Federal Reserve banks often actively recruit on campus. Finally, Wisconsin students typically self-organize additional presentations of job market papers, providing one another with additional opportunities for practice.

Many graduates accept research positions in academia, while others gain employment with international organizations, government, or private consulting firms. Between 2004 and 2015, placements at U.S. universities have included positions as assistant professors at Yale University, Northwestern University, University of California at Berkeley, University of Michigan, University of Pennsylvania, University of California—San Diego, Washington University in St. Louis, University of Florida, University of California—Santa Cruz, Tufts University, the University of Washington, University of Iowa, and the University of Virginia. Placements at non-U.S. universities have included University College London, London School of Economics, McMaster University, University of British Columbia, National Taiwan University, and Tsinghua University. Students pursuing nonacademic employment have accepted positions at institutions including the Federal Reserve Board of Governors, the International Monetary Fund, the Congressional Budget Office, US Treasury Department, the Korea Development Institute, Bates White Consulting, Abt Associates, and Mathematica Policy Research Institute.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Economics, Doctoral Minor (p. 225)
- Economics, M.S. (p. 226)
- Economics, Ph.D. (p. 228)

## PEOPLE

**Faculty:** Professors Blank, Corbae, Deneckere, Durlauf, Engel, Hansen, Hendricks, Kennan, Porter, Rostek, Sandholm, Scholz, Seshadri, Smith, Sorensen, Taber, Walker, West, Williams, Wolfe, Wright; Associate Professors Gandhi, Lentz, Quint, Weretka; Assistant Professors Atalay, Bilir, Freyberger, Fu, Gregory, Penta, Roys, Shi; Affiliate Professors Chinn, Montgomery, Ortalo-Magne, Smeeding; Affiliate Associate Professors Schechter, Wallace; Affiliate Assistant Professors Chang, Chung, Samek, Sarada

## ECONOMICS, DOCTORAL MINOR

The doctoral minor in economics provides an opportunity for students in other disciplines to obtain economics training to complement their primary doctoral program. Additional information is available on the minor page of the Department of Economics website (<http://www.econ.wisc.edu/minor-requirements.htm>).

## REQUIREMENTS

The economics doctoral minor requires four courses (12 credits) taken as a graduate student. At least one course must be from the theory sequence (ECON 711 Economic Theory-Microeconomics Sequence, ECON 712 Economic Theory-Macroeconomics Sequence, ECON 713 Economic Theory: Microeconomics Sequence, ECON 714 Economic Theory; Macroeconomics Sequence) along with three appropriate doctoral-level courses at the 600–900 level. Courses that are part of the economics master's program cannot be used as part of the minor sequence. Not more than one course may be a reading course, workshop, or seminar. In addition, the course sequence must comply with the Graduate School policy for Option A Minors. (<https://grad.wisc.edu/acadpolicy/#minors>)

## ADMISSIONS

Graduate students should obtain the appropriate minor agreement forms from their home department. The minor field must be approved by the Department of Economics director of graduate studies. For help with planning a minor or other question, students should contact the department's graduate advisor.

## PEOPLE

**Faculty:** Professors Blank, Corbae, Deneckere, Durlauf, Engel, Hansen, Hendricks, Kennan, Porter, Rostek, Sandholm, Scholz, Seshadri, Smith, Sorensen, Taber, Walker, West, Williams, Wolfe, Wright; Associate Professors Gandhi, Lentz, Quint, Weretka; Assistant Professors Atalay,

Bilir, Freyberger, Fu, Gregory, Penta, Roys, Shi; Affiliate Professors Chinn, Montgomery, Ortalo-Magne, Smeeding; Affiliate Associate Professors Schechter, Wallace; Affiliate Assistant Professors Chang, Chung, Samek, Sarada

## ECONOMICS, M.S.

The Economics Master of Science–Graduate Foundations program provides training in economics, analytical thinking, and statistical analysis that equips students to compete for scarce spots in competitive Ph.D. programs around the world as well as develop in-demand, marketable skills. The program provides a rigorous foundation in economics.

Training in microeconomics, macroeconomics, and econometrics are essential components of the master's program. The core of the program is that students take a foundational mathematics/statistics course for economics; two courses in microeconomic theory; one course in macroeconomics; and three courses in econometrics (two for econometric theory and one in applied econometrics).

## PLACEMENT

The department has a well-organized placement service. Each year a faculty member functions as the placement officer. He or she is assisted by the placement assistant who coordinates the sending of resumes and letters of recommendation, makes available job vacancy information, and offers general guidance. Each job market candidate gives a regular faculty research seminar on his or her primary research paper; these seminars are typically widely attended by faculty and students and provide a rigorous "test run" for the job market paper. To prepare for the job market interviews mostly conducted at the winter meetings of the American Economic Association, all students are given mock "job market interviews" by faculty members. Students also receive extensive help from their primary advisor, who in addition to providing general counsel during the process of job search, typically is instrumental in contacting colleagues at other universities, or in bringing the student to the attention of the extensive network of former Wisconsin Ph.D.'s employed in universities, colleges, government, and the private sector.

Students also benefit from the fact that many government agencies, including the Board of Governors, the World Bank, the International Monetary Fund, and several Federal Reserve banks often actively recruit on campus. Finally, Wisconsin students typically self-organize additional presentations of job market papers, providing one another with additional opportunities for practice.

Many graduates accept research positions in academia, while others gain employment with international organizations, government, or private consulting firms. Between 2004 and 2015, placements at U.S. universities have included positions as assistant professors at Yale University, Northwestern University, University of California at Berkeley, University of Michigan, University of Pennsylvania, University of California–San Diego, Washington University in St. Louis, University of Florida, University of California–Santa Cruz, Tufts University, the University of Washington, University of Iowa, and the University of Virginia. Placements at non-U.S. universities have included University College London, London School of Economics, McMaster University, University of British Columbia, National Taiwan University, and Tsinghua University. Students pursuing nonacademic employment have accepted positions at institutions including the Federal Reserve Board of Governors, the International Monetary Fund, the Congressional Budget Office, US

Treasury Department, the Korea Development Institute, Bates White Consulting, Abt Associates, and Mathematica Policy Research Institute.

## FUNDING

Applicants to the doctoral program receive full funding consideration if the application form is submitted and graduate school application fee paid by December 5. The department offers a number of financial support packages for the first year of study to incoming doctoral students with outstanding records. These packages guarantee support for five years of study and take the form of fellowship, teaching assistantship, research assistantship, or a combination of the three.

Students admitted to the doctoral program without a guarantee of funding for the first year of study will receive funding during years two through five as long as they are making satisfactory academic progress. All continuing support is based on the condition that a student is making good progress in the program.

There is no funding provided for the master's program.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available named option Graduate Foundations (GF)

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 out of 30 total credits) must be completed graduate-level courses numbered 700 or above.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.S.: Graduate coursework from other institutions will be evaluated on a case-by-case basis by the faculty graduate committee in the Department of Economics. With graduate committee approval, students are allowed to count no more than 7 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.S.–named option in Graduate Foundations: No credits from other institutions are allowed to count toward the M.S. GF degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

M.S.: UW–Madison undergraduate coursework will be evaluated on a case-by-case basis by the faculty graduate committee in the Department of Economics. With graduate committee approval, students are allowed to count no more than 7 credits of coursework numbered 700 or above taken as a UW–Madison undergraduate. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.S.–named option in Graduate Foundations: With program approval, up to 7 credits numbered 300 or above from a UW–Madison undergraduate degree are allowed to count toward the M.S. GF degree. Coursework earned five or more years prior to admission to the master's program is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

M.S.: Coursework numbered 700 or above taken as a UW–Madison special student will be evaluated on a case-by-case basis by the faculty graduate committee in the Department of Economics. With graduate committee approval, students are allowed to count no more than 9 credits of coursework numbered 700 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.S.–named option in Graduate Foundations: With program approval, students are allowed to count no more than 9 credits of coursework numbered 700 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to the master's program is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

M.S.: 15 credits

M.S.–named option in Graduate Foundations: 12 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

M.S.: Four core economic theory courses, ECON 711 Economic Theory-Microeconomics Sequence–ECON 714 Economic Theory; Macroeconomics Sequence; ECON 703 Mathematical Economics I; and two statistics courses (STAT/MATH 709 Mathematical Statistics and STAT/MATH 710 Mathematical Statistics).

M.S.–named option in Graduate Foundations: Three core econometrics courses, ECON 704 Econometrics I–ECON 706 Econometrics III; two microeconomics courses (ECON 701 Microeconomics I and ECON 708 Microeconomics II); ECON 700 Mathematics for Economists; and one macroeconomics course (ECON 702 Macroeconomics I).

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

M.S.: A grade of B or better in at least three of the following six courses: ECON 709 Economic Statistics and Econometrics I, ECON 710 Economic Statistics and Econometrics II, ECON 711 Economic Theory-Microeconomics Sequence, ECON 712 Economic Theory-Macroeconomics Sequence, ECON 713 Economic Theory: Microeconomics Sequence, ECON 714 Economic Theory; Macroeconomics Sequence.

M.S.–named option in Graduate Foundations: None

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENTS AND EXAMINATIONS

M.S.: A comprehensive examination may be required.

M.S.–named option in Graduate Foundations: None

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Doctoral program applications received after February 1 will not be processed by the department. Master's program applications received after March 1 will not be processed by the department.

Doctoral admission requirements include a bachelor's degree, plus three semesters of calculus, a semester of linear algebra, and a semester of mathematical statistics, which must be completed before entering the program. Mathematics preparation should include multivariate calculus, elementary probability, and regression analysis. Applicants must submit three letters of recommendation and Graduate Record Exam (GRE) scores.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Demonstrates understanding of core economic principles and theories in microeconomics, macroeconomics, and econometrics.
- Uses econometric methods to communicate empirical questions in writing.

## PROFESSIONAL CONDUCT

- Conducts empirical research following ethical principles of the discipline for using sources.

## PEOPLE

**Faculty:** Professors Blank, Corbae, Deneckere, Durlauf, Engel, Hansen, Hendricks, Kennan, Porter, Rostek, Sandholm, Scholz, Seshadri, Smith, Sorensen, Taber, Walker, West, Williams, Wolfe, Wright; Associate Professors Gandhi, Lentz, Quint, Weretka; Assistant Professors Atalay, Bilir, Freyberger, Fu, Gregory, Penta, Roys, Shi; Affiliate Professors Chinn, Montgomery, Ortalo-Magne, Smeeding; Affiliate Associate Professors Schechter, Wallace; Affiliate Assistant Professors Chang, Chung, Samek, Sarada

## ECONOMICS, PH.D.

The doctoral program in economics offers a firm grounding in the theory and tools of economics as well as in a variety of fields of specialization. Facilities within the department include faculty and student offices, a library of core materials, and a computer center. The size of the department, the breadth of specialties represented among the faculty, the abundance of research workshops and research facilities, and the related programs of other university departments combine to provide an unusually supportive atmosphere for study and research. Students are encouraged to work together; study groups for course work and preliminary examinations are standard. The department currently has roughly 35 faculty members and approximately 150 graduate students. All doctoral students are assigned desk space. The department and students sponsor social events throughout the year. A graduate advisor is on staff to help students with problems and questions.

The first year of doctoral study concentrates on economic theory and statistics courses. In addition, the department holds seminars for first-year doctoral students that feature faculty presentations. The presentations provide first-year students the opportunity to meet the faculty and learn about research in each field. The department offers seven fields of concentration: econometrics, industrial organization, international economics, labor economics, macroeconomics, microeconomic theory, and public economics.

For more information, see the Economics Doctoral Program Guide (<http://econ.wisc.edu/doctoral.htm>).

## ECONOMETRICS

Econometrics is concerned with the methods for empirical analysis in economics. The program provides strong preparation and training for students interested in econometric methods and theory, and as well as for students whose primary interest lies in applied economics.

All doctoral students in economics, regardless of field, take one year of econometrics (ECON 709 Economic Statistics and Econometrics I and ECON 710 Economic Statistics and Econometrics II, which has an enrollment of about 40–50). In their second year of study, students who choose econometrics as their major field, or who simply want more advanced training, will take ECON 715 Econometric Methods, which covers the core theory of nonlinear estimation and inference. They will also take one or more of ECON 716 Econometric Methods, ECON 718 Topics in Applied Econometrics or ECON 719 Economic Statistics and Econometrics III, which cover selected topics on the frontiers of

theoretical and applied econometrics. These courses have enrollments of about 10–20 students.

The scope of econometrics at Wisconsin is suggested by a list of recent research projects by the econometrics faculty (often with the assistance of graduate students). These include the generalized method of moments, nonparametric likelihood, bootstrap methods, interactions-based models, macroeconometrics, nonlinear time series, and semiparametric estimation. In addition, studies conducted by other faculty members and students—in public economics, labor, industrial organization, macroeconomics, trade, and microeconomics—often draw on appropriately sophisticated econometric techniques.

The econometrics program can be augmented by course offerings in the statistics department.

## INDUSTRIAL ORGANIZATION

The standard graduate preparation in industrial organization consists of two courses. One course presents an overview of the field, focusing on topics where theoretical models have successfully been taken to data. These topics include: static oligopoly models of price/quantity competition in homogeneous and differentiated good markets, models of product search and advertising, bilateral oligopoly models with contracting, models of contracting with asymmetric information, auctions, models of price discrimination, static and dynamic models of entry and exit. The second course focuses more on the details of how to estimate these models and, in particular, on the treatment of unobservables. The course also covers recent developments in the field. The main goal of this course is to transition students from being consumers of research to producers of research in industrial organization.

The empirical approach of industrial organization has shifted from discovering robust empirical regularities that hold across a broad cross section of industries to the detailed study of individual markets based on a theoretical model. This reflects the belief that market structure and firm behavior are sufficiently diverse across industries that they are best studied in the context of a well-defined product and geographical market. The methodology for studying markets at this level involve specifying an equilibrium model of firm behavior and applying this model to data by testing its predictions (reduced form) and/or by estimating its primitives (structural), which are typically consumer preferences and firm costs. Knowledge of model primitives is used to construct counterfactuals and conduct policy analysis. The main analytical tools are game theory, econometrics, and computational methods, and students would benefit from taking advanced courses in these subjects.

For students planning to write a dissertation in industrial organization, the field requirement is a paper to be completed during the summer of the second year. Upon completion of course work and the field requirement, students are expected to actively participate in the weekly industrial organization workshop and seminar. The workshop is dedicated to presentations by graduate students who are working on dissertations in industrial organization and by faculty members; the seminar is for invited speakers from other universities.

## INTERNATIONAL ECONOMICS

International economics is divided into the trade side and the macroeconomics side. The trade side considers the causes and consequences of international trade and of policies that alter trade patterns. A variety of both general equilibrium and partial equilibrium models featuring selected distortions to various competitive norms are used to explore these issues, and empirical evidence relating to

the theories is also emphasized. Recent work analyzes theoretical and empirical investigations of trade and factor movements in the presence of firm-level heterogeneity, dynamics, uncertainty, endogenous government policy reaction, strategic interaction across governments and firms, and the design and purpose of international trade agreements. Economics 871 introduces students to the core of the real side of international economics.

The macroeconomics side of international economics puts special focus on the role of financial markets and monetary variables in open economies. It devotes attention to exchange rate determination and real and financial interaction among open economies. It treats traditional and current analytical approaches to understanding the macroeconomic consequences of monetary policy, fiscal policy, and policy coordination across borders; international capital mobility and default; economic growth; and, optimal portfolio choices. The role of credit frictions on international allocations and the causes and consequences of international financial crises and "sudden stops" are examined. ECON 872 Advanced International Economics is the macroeconomics analogue to the trade course ECON 871 Advanced International Economics.

ECON 899 Recent Advances in Economics covers advanced topics and treatments in international economics, and its specific content depends on the instructor teaching it.

The weekly international economics workshop, ECON 977 Workshop in International Economics/ECON 978 Workshop in International Economics, is an integral part of the program, in which both faculty and advanced graduate students actively participate.

## LABOR ECONOMICS

Labor economics has a long and distinguished history of scholarly research and the application of this research to policy issues. Wisconsin has traditionally been an important center for this work. Students majoring in this field are expected to (eventually) understand relevant institutional features of labor markets, sources of data and econometric techniques needed to draw inferences from these data, and the models of rational economic behavior needed to organize coherent economic thinking about labor markets.

The core material deals with labor supply decisions made by rational households, labor demand decisions made by profit-maximizing firms, and the equilibrium wage differentials and employment patterns implied by these decisions when markets are competitive. Applications include the analysis of wage differentials, life-cycle age-earnings profiles, and returns to human capital investments. Further topics, emphasizing deviations from the competitive ideal, include incentive schemes, discrimination, bargaining between workers and employers to divide monopoly rents, search and unemployment.

There are two required courses for the labor major, ECON 750 Labor Economics and ECON 751 Survey of Institutional Aspects of Labor Economics, usually taken in the second year of the program. Both theoretical and empirical research are emphasized in these courses, and students begin work on a research paper that will help lay the foundation for dissertation research. These courses are supplemented by an active workshop program featuring speakers from various universities and research centers (including Wisconsin).

Labor economics is complemented by several research institutes connected with the department. These institutes are often a source for research assistantship positions and support for dissertation research for labor majors.

## MACROECONOMICS AND MONETARY ECONOMICS

Macroeconomics and monetary economics at Wisconsin emphasizes research on dynamic stochastic environments, as these seem central to understanding private sector and policy determinants of growth, business cycles, income distribution and other central topics. The graduate program in macroeconomics and monetary economics equips students to conduct research in this lively and rapidly changing field through a variety of advanced courses. The course selection varies from year to year, but typically it includes at least one course emphasizing macroeconomic theory and one course emphasizing empirical methods in macroeconomics. In recent years, the field has offered courses in:

1. theory and econometrics of environments comprised of interacting agents, with a focus on inequality dynamics;
2. monetary and financial theory, providing conceptual foundations for understanding financial market equilibria as well as the effects of alternative macroprudential and monetary policies
3. methods of modeling and coping with uncertainty, imperfect information, and private information, and their implications for the design of economic policy;
4. computational or econometric methods, covering tools that have wide applicability in macroeconomics and other areas of economics;
5. topics in macroeconomics, including consumption, time use and the aggregate relevance of micro shocks.

In addition to the courses offered in the department (in general up to five per year), the field recognizes courses taken outside the department (e.g., mathematics courses for those interested in theory, probability and statistics, and courses for students planning to work on empirical topics) as well as other fields.

Students are required to participate in the weekly macro workshop. Students are encouraged to present their own research in this seminar. In addition, depending on demand, the field organizes a brown bag seminar designed to encourage students to present research at an early stage, and individual faculty members regularly form reading groups to discuss tightly focused bodies of state of the art research to help facilitate the development of dissertation ideas.

## MICROECONOMIC THEORY

Microeconomic theory is a broad area that examines foundational issues in economic modeling and provides tools for applied economic research. The field includes partial and general equilibrium theory, game theory, the economics of incentives and information, and decision theory. Students often find it helpful to take courses in the microeconomics field to acquire the technical skills required to do rigorous applied work. Advanced courses in microeconomics offered by the economics department change as the frontiers of the subject and the interests of the faculty evolve.

## PUBLIC ECONOMICS

Public economics is the study of the government's role in the economy, particularly through tax and expenditure policy. Wisconsin has a long and distinguished tradition of teaching and research in public economics. Scholars in public economics examine a wide range of issues. Research by members of the Wisconsin public economics faculty examines, for example, the behavioral effects of taxation social insurance, savings, altruism, anti-poverty policy, education, peer effects, income distribution, and issues in health economics.

There are two required courses for the public economics field, ECON 741 Theory of Public Finance and Fiscal Policy and an applied econometrics or field topics course. These courses examine theoretical and empirical

methods in the field. Specific topics will vary across years, but the sequence will typically cover optimal taxation; the effects of taxation on various aspects of household behavior, such as labor supply, consumption and saving, charitable giving, and household portfolio behavior; social insurance—insurance provided by the government for longevity risk, work-related injuries, unemployed, and disability; fiscal federalism, local public finance, and the provision of public goods; and the rationale and effectiveness of government efforts to ameliorate poverty. The two-course sequence will also typically address topics of active research interest in the field, in broad areas of education and health policy, for example. Like other fields of concentration at Wisconsin, in their second year, students begin work on a research paper. The public economics field also holds an active seminar series featuring invited guests from various universities and research centers (including Wisconsin).

There are many resources across campus that may be of interest to students writing dissertations in public economics. The Institute for Research on Poverty (IRP) has a graduate student fellows program where students receive interdisciplinary training in poverty-related research. Public faculty and students also participate in the Interdisciplinary Training Program in the Education Sciences (ITP). For students interested in health economics, the health economics program within the public economics group annually supports several graduate trainees with a grant from the National Institute of Mental Health. The program is open to students in any field. Special course offerings in health economics include a lecture course and a research seminar. The research seminar explores a particular topic each semester and students (individually or in small groups) conduct original research.

## PLACEMENT

The department has a well-organized placement service. Each year a faculty member functions as the placement officer. He or she is assisted by the placement assistant who coordinates the sending of resumes and letters of recommendation, makes available job vacancy information, and offers general guidance. Each job market candidate gives a regular faculty research seminar on his or her primary research paper; these seminars are typically widely attended by faculty and students and provide a rigorous "test run" for the job market paper. To prepare for the job market interviews mostly conducted at the winter meetings of the American Economic Association, all students are given mock "job market interviews" by faculty members. Students also receive extensive help from their primary advisor, who in addition to providing general counsel during the process of job search, typically is instrumental in contacting colleagues at other universities, or in bringing the student to the attention of the extensive network of former Wisconsin Ph.D.'s employed in universities, colleges, government, and the private sector.

Students also benefit from the fact that many government agencies, including the Board of Governors, the World Bank, the International Monetary Fund, and several Federal Reserve banks often actively recruit on campus. Finally, Wisconsin students typically self-organize additional presentations of job market papers, providing one another with additional opportunities for practice.

Many graduates accept research positions in academia, while others gain employment with international organizations, government, or private consulting firms. Between 2004 and 2015, placements at U.S. universities have included positions as assistant professors at Yale University, Northwestern University, University of California at Berkeley, University of Michigan, University of Pennsylvania, University of California—San Diego, Washington University in St. Louis, University of Florida, University of California—Santa Cruz, Tufts University, the University of

Washington, University of Iowa, and the University of Virginia. Placements at non-U.S. universities have included University College London, London School of Economics, McMaster University, University of British Columbia, National Taiwan University, and Tsinghua University. Students pursuing nonacademic employment have accepted positions at institutions including the Federal Reserve Board of Governors, the International Monetary Fund, the Congressional Budget Office, US Treasury Department, the Korea Development Institute, Bates White Consulting, Abt Associates, and Mathematica Policy Research Institute.

## FUNDING

Applicants to the doctoral program receive full funding consideration if the application form is submitted and graduate school application fee paid by December 5. The department offers a number of financial support packages for the first year of study to incoming doctoral students with outstanding records. These packages guarantee support for five years of study and take the form of fellowship, teaching assistantship, research assistantship, or a combination of the three.

Students admitted to the doctoral program without a guarantee of funding for the first year of study will receive funding during years two through five as long as they are making satisfactory academic progress. All continuing support is based on the condition that a student is making good progress in the program.

There is no funding provided for the master's program.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed graduate-level courses numbered 700 or above.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Graduate coursework from other institutions will be evaluated on a case-by-case basis by the faculty graduate committee in the Department of Economics. With graduate committee approval, students are allowed to count no more than 15 credits of graduate coursework from other

institutions. coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

UW–Madison undergraduate coursework will be evaluated on a case-by-case basis by the faculty graduate committee in the Department of Economics. With graduate committee approval, students are allowed to count no more than 7 credits of coursework numbered 700 or above taken as a UW–Madison undergraduate. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

Coursework numbered 700 or above taken as a UW–Madison Special student will be evaluated on a case-by-case basis by the faculty graduate committee in the Department of Economics. With graduate committee approval, students are allowed to count no more than 15 credits of coursework numbered 700 or above taken as a UW–Madison special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Four core economic theory courses:

ECON 711 Economic Theory-Microeconomics Sequence

ECON 712 Economic Theory-Macroeconomics Sequence

ECON 713 Economic Theory: Microeconomics Sequence

ECON 714 Economic Theory; Macroeconomics Sequence

ECON 703 Mathematical Economics I

Two statistics courses:

ECON 709 Economic Statistics and Econometrics I

ECON 710 Economic Statistics and Econometrics II

For more information on courses and fields in the economics department, see the Economics Doctoral Program Guide ([http://www.econ.wisc.edu/grad/program\\_guide.html](http://www.econ.wisc.edu/grad/program_guide.html)).

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor. For more information, see the economics department minor fields page (<http://www.econ.wisc.edu/grad/minor%20fields.html>).

## OVERALL GRADUATE GPA REQUIREMENT

3.00 cumulative GPA required

## OTHER GRADE REQUIREMENTS

None

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENTS AND EXAMINATIONS

The micro and macro theory preliminary examinations must be taken in early summer following the first year of graduate study. Students who do not pass both exams on this first attempt retake the exam(s) they did not pass in late summer. A third attempt is granted only if the student has passed one exam after the second attempt. To maintain satisfactory progress through the program, each student must have the field paper approved by the student's major field by December 15 of the third year of study and must complete a three-signature dissertation proposal by December 15 of the fourth year of study. Consult the department website ([http://www.econ.wisc.edu/grad/program\\_guide.html](http://www.econ.wisc.edu/grad/program_guide.html)) for additional information.

## TIME CONSTRAINTS

Students must complete the final oral exam by May 15 of the seventh year of study.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Doctoral program applications received after February 1 will not be processed by the department. Master's program applications received after March 1 will not be processed by the department.

Doctoral admission requirements include a bachelor's degree, plus three semesters of calculus, a semester of linear algebra, and a semester of mathematical statistics, which must be completed before entering the program. Mathematics preparation should include multivariate calculus, elementary probability, and regression analysis. Applicants must submit three letters of recommendation and Graduate Record Exam (GRE) scores.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Establishes a firm grounding in economic theory.
- Exhibits expert depth of knowledge in one of the fields of specialization in the Economics department.

- Demonstrates command of the tools needed to conduct and assess empirical research in economics.
- Creates and presents research that makes a substantive contribution to the field.

## PROFESSIONAL CONDUCT

- Follows ethical principles of the discipline in using sources in research.

## PEOPLE

**Faculty:** Professors Blank, Corbae, Deneckere, Durlauf, Engel, Hansen, Hendricks, Kennan, Porter, Rostek, Sandholm, Scholz, Seshadri, Smith, Sorensen, Taber, Walker, West, Williams, Wolfe, Wright; Associate Professors Gandhi, Lentz, Quint, Weretka; Assistant Professors Atalay, Bilir, Freyberger, Fu, Gregory, Penta, Roys, Shi; Affiliate Professors Chinn, Montgomery, Ortalo-Magne, Smeeding; Affiliate Associate Professors Schechter, Wallace; Affiliate Assistant Professors Chang, Chung, Samek, Sarada



# EDUCATIONAL LEADERSHIP AND POLICY ANALYSIS

**Administrative Unit:** Educational Leadership and Policy Analysis

**College/School:** School of Education

**Admitting Plans:** M.S., Ph.D., Specialist Certificate

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor, Specialist Certificate

**Named Options:** Cooperative Program with UW–Whitewater (M.S.), Global Higher Education (M.S.), Wisconsin Idea Executive PhD Cohort (Ph.D.)

The mission of the department is to create, evaluate, exchange, and apply knowledge about leadership, learning, and organizational performance to prepare scholars and scholar practitioners who cultivate equity and educational opportunity in a diverse and changing world.

Many varied educational constituencies need to be able to analyze and to inform debate on educational issues, and to lead and develop learning communities that meet the diverse learning needs of students and society. We believe effective educational leadership in any institution embodies three core values: inquiry, equity and reflection.

Graduates and recipients of the department's instruction are expected to reflect the knowledge, skills, and personal qualities that will be successful in promoting, producing, and improving learning and increasing public trust in educational institutions.

The Department of Educational Leadership and Policy Analysis offers the M.S. degree, Global Higher Education named option in the M.S. degree, the Ph.D. degree, the Wisconsin Idea Executive Ph.D. named option cohort, an educational specialist certificate program, and Principal, Director of Instruction, Director of Special Education and Pupil Services and Superintendent licensure programs. All are intended to increase professional knowledge and skills essential for educational leadership, and to prepare persons for leadership positions at all levels of education: preschool, elementary, secondary, special education, vocational and technical schools, and colleges and universities, both public and private.

In keeping with this mission, the department has three specialties or emphases: higher, postsecondary, and continuing education, focused on the effective administration of postsecondary institutions, including higher education leadership, student affairs administration, and athletic administration; K–12 leadership, emphasizing the effective administration of primary and secondary institutions; and educational policy, stressing effective formation and analysis of policies governing the administration of all educational institutions. Students in each specialty will focus their course work within the emphasis, although students are encouraged to learn about other areas as well. Many students in the department also pursue the course work leading to certification for administrative licensure by the Wisconsin Department of Public Instruction.

## COOPERATIVE PROGRAM WITH UW–WHITEWATER

The University of Wisconsin Board of Regents approved the cooperative master of science degree program in educational leadership and policy analysis between the University of Wisconsin–Madison and the UW–Whitewater campus on February 5, 1982.

The cooperative program provides the opportunity for educators in the northeastern and central regions of Wisconsin to obtain a master of science degree, with certification (principal, director of instruction, director of special education and pupil services) in Educational Leadership and Policy Analysis, from the University of Wisconsin–Madison. All required course work will be offered on the Whitewater campus.

Students must be admitted simultaneously to UW–Madison and UW–Whitewater. Program admission will be to the UW–Madison Department of Educational Leadership and Policy Analysis and to the UW–Whitewater Department of Curriculum and Instruction. Upon completion of the approved program, students will be awarded a master of science degree from UW–Madison.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Educational Leadership and Policy Analysis, Doctoral Minor (p. 233)
- Educational Leadership and Policy Analysis, M.S. (p. 234)
- Educational Leadership and Policy Analysis, Ph.D. (p. 236)
- Educational Leadership and Policy Analysis, Specialist Certificate (p. 237)

## PEOPLE

**Faculty:** Professor Camburn (chair); Professors Borman, Capper, Conrad, Jackson, Halverson, Kelley, Mead; Associate Professors Diamond, Miller, Winkle-Wagner; Assistant Professors Goff, Hillman, Wang; Clinical Professors Crim, Rainwater

## EDUCATIONAL LEADERSHIP AND POLICY ANALYSIS, DOCTORAL MINOR

A minor in Educational Leadership and Policy Analysis serves to provide a rational, unified set of courses which have a clearly articulated theme or focus which allows the student to develop knowledge in Educational Leadership and Policy Analysis.

## REQUIREMENTS

A Ph.D. (doctoral) minor requires a minimum of 12 credits of course work in Educational Leadership and Policy Analysis. Course selection is in consultation with an academic advisor in the Department of Educational Leadership and Policy Analysis.

## ADMISSIONS

Contact Shari Smith, Senior Student Services Coordinator, [ssmith@education.wisc.edu](mailto:ssmith@education.wisc.edu)

## PEOPLE

**Faculty:** Professor Camburn (chair); Professors Borman, Capper, Conrad, Jackson, Halverson, Kelley, Mead; Associate Professors Diamond, Miller, Winkle-Wagner; Assistant Professors Goff, Hillman, Wang; Clinical Professors Crim, Rainwater

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Graduates and recipients of the department's instruction are expected to reflect the knowledge, skills, and personal qualities that will be successful in promoting, producing, and improving learning and increasing public trust in educational institutions.

The Department of Educational Leadership and Policy Analysis offers the M.S. degree; Global Higher Education named option in the M.S. degree; the Ph.D. degree; the Wisconsin Idea Executive Ph.D. named option cohort; an educational specialist certificate program; and Principal, Director of Instruction, Director of Special Education and Pupil Services, and Superintendent licensure programs. All are intended to increase professional knowledge and skills essential for educational leadership, and to prepare persons for leadership positions at all levels of education: preschool, elementary, secondary, special education, vocational and technical schools, and colleges and universities, both public and private.

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Students must be admitted simultaneously to UW–Madison and UW–Whitewater. Program admission will be to the UW–Madison Department of Educational Leadership and Policy Analysis and to the UW–Whitewater Department of Curriculum and Instruction. Upon completion of the approved program, students will be awarded a master of science degree from UW–Madison.

## FUNDING

Full-time graduate students may receive appointments as research, program, or project assistants. These assistantships usually provide for remission of tuition (except for segregated fees) and provide a stipend to help meet the expenses of graduate study. For information regarding financial aid opportunities, see Costs and Funding (<https://grad.wisc.edu/studentfunding>) on the Graduate School website.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available named options in Cooperative Program with UW–Whitewater, and Global Higher Education

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

24 credits out of 30 total credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework in educational leadership from other institutions and 6 credits of graduate coursework in areas other than educational leadership from other institutions. Coursework earned five or more years prior to admission to the master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNDERGRADUATE

With program approval, 6 credits of coursework numbered 500 or above from a UW-Madison undergraduate degree are allowed to count toward the degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

12 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students

completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission to the department is based, in part, on the following criteria: undergraduate GPA in the last 60 hours of undergraduate work, GPA on 9 or more graduate credits, Graduate Record Exam (GRE) scores (required for Ph.D. and specialist certificate only), three letters of recommendation from persons who are qualified to judge the applicant's academic and professional competence, resume, transcripts, and a "reasons for study" essay.

For information regarding admissions criteria, deadlines and the application process, see Admissions (<http://elpa.education.wisc.edu/elpa/admissions>) on the department website.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to scholarly inquiry or practice in educational settings.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study or field of practice.
- Demonstrates understanding of the primary field of study or field of practice in a historical, social, or global context.
- Demonstrates understanding of how to identify and address social inequalities in educational opportunities and outcomes through a field of study or field of practice.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study or field of practice.
- Communicates clearly in ways appropriate to the field of study or field of practice.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professor Camburn (chair); Professors Borman, Capper, Conrad, Jackson, Halverson, Kelley, Mead; Associate Professors Diamond, Miller, Winkle-Wagner; Assistant Professors Goff, Hillman, Wang; Clinical Professors Crim, Rainwater

## EDUCATIONAL LEADERSHIP AND POLICY ANALYSIS, PH.D.

The mission of the department is to create, evaluate, exchange, and apply knowledge about leadership, learning, and organizational performance to prepare scholars and scholar practitioners who cultivate equity and educational opportunity in a diverse and changing world.

Many varied educational constituencies need to be able to analyze and to inform debate on educational issues, and to lead and develop learning communities that meet the diverse learning needs of students and society. We believe effective educational leadership in any institution embodies three core values: inquiry, equity and reflection.

Graduates and recipients of the department's instruction are expected to reflect the knowledge, skills, and personal qualities that will be successful in promoting, producing, and improving learning and increasing public trust in educational institutions.

The Department of Educational Leadership and Policy Analysis offers the M.S. degree; Global Higher Education named option in the M.S. degree; the Ph.D. degree; the Wisconsin Idea Executive Ph.D. named option cohort; an educational specialist certificate program; and Principal, Director of Instruction, Director of Special Education and Pupil Services, and Superintendent licensure programs. All are intended to increase professional knowledge and skills essential for educational leadership, and to prepare persons for leadership positions at all levels of education: preschool, elementary, secondary, special education, vocational and technical schools, and colleges and universities, both public and private.

In keeping with this mission, the department has three specialties or emphases: higher, postsecondary, and continuing education, focused on the effective administration of postsecondary institutions, including higher education leadership, student affairs administration, and athletic administration; K–12 leadership, emphasizing the effective administration of primary and secondary institutions; and educational policy, stressing effective formation and analysis of policies governing the administration of all educational institutions. Students in each specialty will focus their course work within the emphasis, although students are encouraged to learn about other areas as well. Many students in the department also pursue the course work leading to certification for administrative licensure by the Wisconsin Department of Public Instruction.

### COOPERATIVE PROGRAM WITH UW–WHITEWATER

The University of Wisconsin Board of Regents approved the cooperative master of science degree program in educational leadership and policy analysis between the University of Wisconsin–Madison and the UW–Whitewater campus on February 5, 1982.

The cooperative program provides the opportunity for educators in the northeastern and central regions of Wisconsin to obtain a master of science degree, with certification (principal, director of instruction, director of special education and pupil services) in Educational Leadership and Policy Analysis, from the University of Wisconsin–Madison. All required course work will be offered on the Whitewater campus.

Students must be admitted simultaneously to UW–Madison and UW–Whitewater. Program admission will be to the UW–Madison Department of Educational Leadership and Policy Analysis and to the UW–Whitewater Department of Curriculum and Instruction. Upon completion of the approved program, students will be awarded a master of science degree from UW–Madison.

### FUNDING

Full-time graduate students may receive appointments as research, program, or project assistants. These assistantships usually provide for remission of tuition (except for segregated fees) and provide a stipend to help meet the expenses of graduate study. For information regarding financial aid opportunities, see Costs and Funding (<https://grad.wisc.edu/studentfunding>) on the Graduate School website.

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### DOCTORAL DEGREES

Ph.D., with available option in Wisconsin Idea Executive Ph.D. Cohort

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

75 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

51 credits out of 75 total credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 36 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

#### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison

Special student. coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission to the department is based, in part, on the following criteria: undergraduate GPA in the last 60 hours of undergraduate work, GPA on 9 or more graduate credits, Graduate Record Exam (GRE) scores (required for Ph.D. and specialist certificate only), three letters of recommendation from persons who are qualified to judge the applicant's academic and professional competence, resume, transcripts, and a "reasons for study" essay.

For information regarding admissions criteria, deadlines and the application process, see Admissions (<http://elpa.education.wisc.edu/elpa/admissions>) on the department website.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Regardless of whether an individual is awarded a master's degree, the doctoral level learning goals are inclusive of the master's level learning goals.
- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research or scholarship that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions to society in the field of study or field of practice.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professor Camburn (chair); Professors Borman, Capper, Conrad, Jackson, Halverson, Kelley, Mead; Associate Professors Diamond, Miller, Winkle-Wagner; Assistant Professors Goff, Hillman, Wang; Clinical Professors Crim, Rainwater

## EDUCATIONAL LEADERSHIP AND POLICY ANALYSIS, SPECIALIST CERTIFICATE

The mission of the department is to create, evaluate, exchange, and apply knowledge about leadership, learning, and organizational performance to prepare scholars and scholar practitioners who cultivate equity and educational opportunity in a diverse and changing world.

Many varied educational constituencies need to be able to analyze and to inform debate on educational issues, and to lead and develop learning

communities that meet the diverse learning needs of students and society. We believe effective educational leadership in any institution embodies three core values: inquiry, equity and reflection.

Graduates and recipients of the department's instruction are expected to reflect the knowledge, skills, and personal qualities that will be successful in promoting, producing, and improving learning and increasing public trust in educational institutions.

The Department of Educational Leadership and Policy Analysis offers the M.S. degree; Global Higher Education named option in the M.S. degree; the Ph.D. degree; the Wisconsin Idea Executive Ph.D. named option cohort; an educational specialist certificate program; and Principal, Director of Instruction, Director of Special Education and Pupil Services, and Superintendent licensure programs. All are intended to increase professional knowledge and skills essential for educational leadership, and to prepare persons for leadership positions at all levels of education: preschool, elementary, secondary, special education, vocational and technical schools, and colleges and universities, both public and private.

In keeping with this mission, the department has three specialties or emphases: higher, postsecondary, and continuing education, focused on the effective administration of postsecondary institutions, including higher education leadership, student affairs administration, and athletic administration; K–12 leadership, emphasizing the effective administration of primary and secondary institutions; and educational policy, stressing effective formation and analysis of policies governing the administration of all educational institutions. Students in each specialty will focus their course work within the emphasis, although students are encouraged to learn about other areas as well. Many students in the department also pursue the course work leading to certification for administrative licensure by the Wisconsin Department of Public Instruction.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### SPECIALIST CERTIFICATE

Specialist Certificate

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

60 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

24 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

30 credits out of 60 total credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute

are identified and searchable in the university's Course Guide. (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>)

### PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 36 credits of graduate coursework from other institutions. Coursework earned five years or more prior to admission to the certificate is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the certificate.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five years or more prior to admission to the certificate is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission to the department is based, in part, on the following criteria: undergraduate GPA in the last 60 hours of undergraduate work, GPA on 9 or more graduate credits, Graduate Record Exam (GRE) scores (required for Ph.D. and specialist certificate only), three letters of recommendation from persons who are qualified to judge the applicant's academic and professional competence, resume, transcripts, and a "reasons for study" essay.

For information regarding admissions criteria, deadlines and the application process, see Admissions (<http://elpa.education.wisc.edu/elpa/admissions>) on the department website.

## PEOPLE

**Faculty:** Professor Camburn (chair); Professors Borman, Capper, Conrad, Jackson, Halverson, Kelley, Mead; Associate Professors Diamond, Miller, Winkle-Wagner; Assistant Professors Goff, Hillman, Wang; Clinical Professors Crim, Rainwater

# EDUCATIONAL POLICY STUDIES

**Administrative Unit:** Educational Policy Studies

**College/School:** School of Education

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A., Ph.D.

**Minors and Certificates:** Doctoral Minor

The Department of Educational Policy Studies (EPS) offers an interdisciplinary program leading to both the M.A. and Ph.D. degrees. The department is dedicated to the study of educational policy in its various manifestations and to the study of traditionally defined fields such as history of education, philosophy of education, comparative and international education, and sociology and anthropology of education. The number of budgeted faculty in the department is 11. Twelve to 18 students enter the department each year. The department includes faculty with interests in education beyond the United States and has formed ties with institutions and scholars in other countries. Several faculty from the departments of Curriculum and Instruction, Geography, Sociology, and Philosophy hold joint appointments in EPS, and several EPS faculty members hold appointments in other departments (History, Sociology, and Anthropology) and in programs in African studies, Development Studies, Global Health Institute, and women's studies.

Graduates of the department pursue a variety of academic, government, and private sector careers. They may be found across the United States in departments of educational policy studies and educational foundations, and other departments within schools of education; in organizations dedicated to educational research; in government and foundation work; and, in many other countries, in both higher education and ministries of education.

Beyond the department, other faculty at the University of Wisconsin–Madison study educational policy. They may be found, for example, in the Department of Educational Leadership and Policy Analysis, in the Robert M. La Follette School of Public Affairs, and in the Wisconsin Center For Education Research (WCER). Over the years, WCER projects have provided valuable research and employment opportunities to EPS students.

The department's graduate students are diverse. They come with a wide range of backgrounds in education and in the liberal arts. They vary in age, ethnicity, and social background, as well as prior practical and educational experience. Students thus provide a resource for one another's scholarly development. Some EPS courses are cross-listed in the College of Letters & Science; others are cross-listed with other departments in the School of Education. They consequently attract students who approach material with a broad range of intellectual perspectives and complementary knowledge.

Despite the variety structured into the program, the multidisciplinary backgrounds of faculty, and the diversity of students, the small size of the department often leads to closer ties between students and faculty than are possible in most larger departments. Doctoral students generally come to know several faculty well and have an opportunity to work closely together.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Educational Policy Studies, Doctoral Minor (p. 240)
- Educational Policy Studies, M.A. (p. 240)
- Educational Policy Studies, Ph.D. (p. 242)

## PEOPLE

**Faculty:** Professors Kendall, Lee, Nelson (chair), Reese; Associate Professors Bartlett, Posey-Maddox; Assistant Professors Baldrige, Moeller, Turner, Stem

## EDUCATIONAL POLICY STUDIES, DOCTORAL MINOR

### REQUIREMENTS

For doctoral students in other departments, the Graduate School's requirement for a doctoral minor may be met by taking courses in educational policy studies. The following policies apply:

- The minor in educational policy studies shall consist of a minimum of 12 credits of work taken in the department.
- The specific courses should be approved by a minor advisor on the faculty of the Department of Educational Policy Studies not later than halfway through the minor, and at that point a Minor Agreement form signed by the advisor must be filed with the department.
- No more than 1 credit of Independent Reading or Research may be approved by the minor advisor as part of the minor. Permission to include more than 1 credit of independent work may be granted only by a vote of the department.
- The minor professor may approve by transfer up to 6 credits of coursework taken in educational policy studies or educational foundations courses at other institutions; further transfer credits may be granted only by a vote of the department.

## PEOPLE

**Faculty:** Professors Kendall, Lee, Nelson (chair), Reese; Associate Professors Bartlett, Posey-Maddox; Assistant Professors Baldrige, Moeller, Turner, Stem

## EDUCATIONAL POLICY STUDIES, M.A.

The Department of Educational Policy Studies offers both master of arts (M.A. minimum 30 credits) and doctor of philosophy (Ph.D. minimum 51 credits) degrees. Students who enroll with only a bachelor's degree and intend to pursue the Ph.D. degree are required to take the M.A. on the way to the Ph.D. Applicants already holding a master's degree will be admitted either into the EPS master's program or into the Ph.D. program, depending upon the recommendation of the admissions committee.



Students for both the M.A. and Ph.D. degrees are expected to develop both depth and breadth in their studies. For the Ph.D. there are minimum credit requirements of 18 credits for the concentration and of 12 credits within educational policy studies for breadth. All candidates for the Ph.D. must take a minimum of 30 credits in EPS.

The Department of Educational Policy Studies (EPS) offers an interdisciplinary program leading to both the M.A. and Ph.D. degrees. The department is dedicated to the study of educational policy in its various manifestations and to the study of traditionally defined fields such as history of education, philosophy of education, comparative and international education, and sociology and anthropology of education. The number of budgeted faculty in the department is 11. Twelve to 18 students enter the department each year. The department includes faculty with interests in education beyond the United States and has formed ties with institutions and scholars in other countries. Several faculty from the departments of Curriculum and Instruction, Geography, Sociology, and Philosophy hold joint appointments in EPS, and several EPS faculty members hold appointments in other departments (History, Sociology, and Anthropology) and in programs in African studies, Development Studies, Global Health Institute, and women's studies.

Graduates of the department pursue a variety of academic, government, and private sector careers. They may be found across the United States in departments of educational policy studies and educational foundations, and other departments within schools of education; in organizations dedicated to educational research; in government and foundation work; and, in many other countries, in both higher education and ministries of education.

Beyond the department, other faculty at the University of Wisconsin–Madison study educational policy. They may be found, for example, in the Department of Educational Leadership and Policy Analysis, in the Robert M. La Follette School of Public Affairs, and in the Wisconsin Center For Education Research (WCER). Over the years, WCER projects have provided valuable research and employment opportunities to EPS students.

The department's graduate students are diverse. They come with a wide range of backgrounds in education and in the liberal arts. They vary in age, ethnicity, and social background, as well as prior practical and educational experience. Students thus provide a resource for one another's scholarly development. Some EPS courses are cross-listed in the College of Letters & Science; others are cross-listed with other departments in the School of Education. They consequently attract students who approach material with a broad range of intellectual perspectives and complementary knowledge.

Despite the variety structured into the program, the multidisciplinary backgrounds of faculty, and the diversity of students, the small size of the department often leads to closer ties between students and faculty than are possible in most larger departments. Doctoral students generally come to know several faculty well and have an opportunity to work closely together.

## FUNDING

The department has a small number of teaching assistantships. In addition, students in educational policy studies are frequently successful in competing for assistantships on professors' research grants through the Wisconsin Center for Education Research and other research organizations on campus, as well as for administrative assistantships

and for teaching assistantships in related departments. University assistantships of at least one-third time routinely provide tuition remission (except for segregated fees), medical insurance, and a stipend.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

18 of the 30 total credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 340 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Students may enter the department once a year, in fall. The deadline for applying is December 15, with applicants notified by letter before March 1. All applicants must apply online. Accepted students must respond in writing by April 15. The application is judged on the basis of previous academic record, other experience, 3 letters of recommendation, personal statement, vitae, writing sample, and the Graduate Record Exam (GRE) scores.

The admissions process in the department is the responsibility of the Admissions Committee. The committee will direct applications from qualified candidates to a faculty member in the department whose interests are similar to the applicant's. A temporary advisor must be willing to accept temporary responsibility for the student's graduate program. If no temporary advisor can be found, the candidate cannot

be admitted to graduate study. If a faculty member agrees to serve as temporary advisor and the applicant is judged qualified for admission, the student is notified that the department will recommend admission to the Graduate School. Formal notification of admission comes from the Graduate School.

All applications must include a substantial sample of academic writing. For applicants already having an approved master's thesis, the thesis must be submitted. For students holding an M.A. that did not require a thesis, and for applicants currently pursuing an M.A., a paper from a graduate-level course or seminar may be submitted. For students holding a B.A., the writing sample might include sections from an undergraduate thesis or seminar paper, or a course paper. Applicants who wish to submit an alternative writing sample (for example, solely authored published article, solely authored research report or section of a research report) should check first with the chair of the Admissions Committee.

For students who are admitted, the Admissions Committee will, in consultation with an applicant's prospective advisor, recommend admission to either the EPS masters program or the EPS doctoral program. See department website for application requirements.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will understand the social, cultural, and/or historical contexts surrounding formal and/or informal education in the U.S. and/or in a global context.
- Students will be able to interpret educational policy in a national and/or global context.
- Students will understand educational inequality related to race, class, gender and/or other dimensions.

### PROFESSIONAL CONDUCT

- Students will be able to recognize and apply principles of ethical research.

## PEOPLE

**Faculty:** Professors Kendall, Lee, Nelson (chair), Reese; Associate Professors Bartlett, Posey-Maddox; Assistant Professors Baldrige, Moeller, Turner, Stem

## EDUCATIONAL POLICY STUDIES, PH.D.

The Department of Educational Policy Studies offers both master of arts (M.A. minimum 30 credits) and doctor of philosophy (Ph.D. minimum 51 credits) degrees. Students who enroll with only a bachelor's degree and intend to pursue the Ph.D. degree are required to take the M.A. on the way to the Ph.D. Applicants already holding a master's degree will be admitted either into the EPS master's program or into the Ph.D. program, depending upon the recommendation of the admissions committee. Students for both the M.A. and Ph.D. degrees are expected to develop both depth and breadth in their studies. For the Ph.D. there are minimum credit requirements of 18 credits for the concentration and of 12 credits

within educational policy studies for breadth. All candidates for the Ph.D. must take a minimum of 30 credits in EPS.

The Department of Educational Policy Studies (EPS) offers an interdisciplinary program leading to both the M.A. and Ph.D. degrees. The department is dedicated to the study of educational policy in its various manifestations and to the study of traditionally defined fields such as history of education, philosophy of education, comparative and international education, and sociology and anthropology of education. The number of budgeted faculty in the department is 11. Twelve to 18 students enter the department each year. The department includes faculty with interests in education beyond the United States and has formed ties with institutions and scholars in other countries. Several faculty from the departments of Curriculum and Instruction, Geography, Sociology, and Philosophy hold joint appointments in EPS, and several EPS faculty members hold appointments in other departments (History, Sociology, and Anthropology) and in programs in African studies, Development Studies, Global Health Institute, and women's studies.

Graduates of the department pursue a variety of academic, government, and private sector careers. They may be found across the United States in departments of educational policy studies and educational foundations, and other departments within schools of education; in organizations dedicated to educational research; in government and foundation work; and, in many other countries, in both higher education and ministries of education.

Beyond the department, other faculty at the University of Wisconsin–Madison study educational policy. They may be found, for example, in the Department of Educational Leadership and Policy Analysis, in the Robert M. La Follette School of Public Affairs, and in the Wisconsin Center For Education Research (WCER). Over the years, WCER projects have provided valuable research and employment opportunities to EPS students.

The department's graduate students are diverse. They come with a wide range of backgrounds in education and in the liberal arts. They vary in age, ethnicity, and social background, as well as prior practical and educational experience. Students thus provide a resource for one another's scholarly development. Some EPS courses are cross-listed in the College of Letters & Science; others are cross-listed with other departments in the School of Education. They consequently attract students who approach material with a broad range of intellectual perspectives and complementary knowledge.

Despite the variety structured into the program, the multidisciplinary backgrounds of faculty, and the diversity of students, the small size of the department often leads to closer ties between students and faculty than are possible in most larger departments. Doctoral students generally come to know several faculty well and have an opportunity to work closely together.

The cornerstone of the department's doctoral program is the concentration. The department offers concentrations in social sciences and education, history of education, and comparative international education and global studies. Concentrations are intended to embody the content knowledge and learning experiences that students need to achieve necessary levels of proficiency within a field of study. While these levels of proficiency are acquired largely through course work and other traditional academic activities, in appropriate fields they may also be based in work experiences, internships, independent studies, and similar activities.

## CONCENTRATION IN SOCIAL SCIENCES AND EDUCATION

Students in the Social Sciences and Education (SSE) concentration apply disciplinary perspectives, theories and methodologies to the study of issues in educational policy. Faculty members in this concentration utilize sociological, anthropological, political, and economic perspectives. SSE members aim to inform public discourse and educational policy and practice.

EPS students choosing to concentrate in Social Sciences and Education will develop a program of study that combines deep exploration of a particular educational problem, theoretical perspective, methodology, or disciplinary approach with broad grounding in social foundations of education and in key substantive fields relevant to educational policy and/or practice. Programs of study will be individually designed (with the support and approval of an EPS advisor) to reflect students' prior knowledge, skills and experience as well as their current educational goals. Students in this concentration are required to become well-versed in methodological approaches common to social science research, and specifically are required to take a methodology course and two research methods courses. Students within the concentration have the option to declare an "emphasis" in sociology, anthropology, or policy. In order to do so, at least two of their preliminary examination questions must be focused on the intended academic area of "emphasis."

Students who successfully complete this concentration should be well-prepared for careers as researchers, policy analysts, and advocates in academic, governmental, or non-governmental settings.

## CONCENTRATION IN COMPARATIVE INTERNATIONAL EDUCATION AND GLOBAL STUDIES

Study in comparative international education prepares researchers, teachers, and planners who are interested in education across nations and cultures. Various modes of inquiry and the intellectual orientations of several disciplines are used to investigate, from a comparative and/or cross-cultural perspective, the following aspects of education in one or more geographical regions of the world: educational change and modernization, the interaction between education and development (social, political, economic), the politics of educational reform, educational planning and institution building, and the interrelationships of particular aspects of schools, societies, and cultures

## CONCENTRATION IN HISTORY AND HUMANITIES

The study of history helps us understand past educational policies and practices in the context of their time. It also often provides a unique perspective on modern developments. Students in the history of education usually study subjects from interdisciplinary angles, adapting theories and interpretive points of view from the humanities as well as the social sciences in their understanding of the past. In addition, great emphasis is placed in the program on the mastery of core knowledge in the field, the honing of analytical tools, and the improvement of writing skills, all of which are useful in a variety of academic and other settings. Students who choose a concentration in the history of education may specialize in the history of American education, African American education, the history of European education, comparative history of education, or any combination of these approved by the student's advisory committee.

## FUNDING

The department has a small number of teaching assistantships. In addition, students in educational policy studies are frequently successful

in competing for assistantships on professors' research grants through the Wisconsin Center for Education Research and other research organizations on campus, as well as for administrative assistantships and for teaching assistantships in related departments. University assistantships of at least one-third time routinely provide tuition remission (except for segregated fees), medical insurance, and a stipend.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

30 of the 51 total credits must be completed in graduate-level course; must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 340 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

### TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within 5 years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

### LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Students may enter the department once a year, in fall. The deadline for applying is December 15, with applicants notified by letter before March 1. All applicants must apply online. Accepted students must respond in writing by April 15. The application is judged on the basis of previous academic record, other experience, 3 letters of recommendation, personal statement, vitae, writing sample, and the Graduate Record Exam (GRE) scores.

The admissions process in the department is the responsibility of the Admissions Committee. The committee will direct applications from qualified candidates to a faculty member in the department whose interests are similar to the applicant's. A temporary advisor must be willing to accept temporary responsibility for the student's graduate program. If no temporary advisor can be found, the candidate cannot be admitted to graduate study. If a faculty member agrees to serve as temporary advisor and the applicant is judged qualified for admission, the student is notified that the department will recommend admission to the Graduate School. Formal notification of admission comes from the Graduate School.

All applications must include a substantial sample of academic writing. For applicants already having an approved master's thesis, the thesis must be submitted. For students holding an M.A. that did not require a thesis, and for applicants currently pursuing an M.A., a paper from a graduate-level course or seminar may be submitted. For students holding a B.A., the writing sample might include sections from an undergraduate thesis or seminar paper, or a course paper. Applicants who wish to submit an alternative writing sample (for example, solely authored published article, solely authored research report or section of a research report) should check first with the chair of the Admissions Committee.

For students who are admitted, the Admissions Committee will, in consultation with an applicant's prospective advisor, recommend admission to either the EPS masters program or the EPS doctoral program. See department website for application requirements.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will be able to articulate and conduct research related to the social, cultural, and/or historical contexts surrounding formal and/or informal education in the US and/or in a global context.
- Students will be able to interpret and critique educational policy in a national and/or global context.
- Students will understand and analyze educational inequality related to race, class, gender and/or other dimensions.

### PROFESSIONAL CONDUCT

- Students will be able to apply professional principles of ethical research.

## PEOPLE

**Faculty:** Professors Kendall, Lee, Nelson (chair), Reese; Associate Professors Bartlett, Posey-Maddox; Assistant Professors Baldrige, Moeller, Turner, Stem

# EDUCATIONAL PSYCHOLOGY

**Administrative Unit:** Educational Psychology

**College/School:** School of Education

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor in Educational Psychology; Doctoral Minor in Prevention and Intervention Science; Certificate in Prevention and Intervention Science

**Named Options:** Professional Educator (MSPE)

The Department of Educational Psychology offers the master of science and doctor of philosophy degrees in educational psychology. The programs for the M.S. and Ph.D. in educational psychology provide comprehensive knowledge of the field and intensive specialization in one of four areas of study and research: human development, learning sciences, quantitative methods, and school psychology.

The department provides for training in research. Many faculty members in the department conduct controlled research studies with human participants; schools and other agencies in the Madison area cooperate in facilitating such research projects. Principal research facilities include the School of Education's Wisconsin Center for Education Research, and the multidisciplinary Waisman Center.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Educational Psychology, Doctoral Minor (p. 246)
- Educational Psychology, M.S. (p. 246)
- Educational Psychology, Ph.D. (p. 249)
- Prevention and Intervention Science, Doctoral Minor (p. 251)
- Prevention and Intervention Science, Graduate/Professional Certificate (p. 253)

## PEOPLE

**Faculty:** Professors Brown (chair), Asmus, Bolt, Enright, Gettinger, Kalish, Kaplan, Kim, Kratochwill, Nathan, Puntambekar, Shaffer; Associate Professors Albers, Bellmore, Wollack; Assistant Professors Hubbard, Matthews, Rau, Steiner, Vlach; Clinical Professor McGivern

## EDUCATIONAL PSYCHOLOGY, DOCTORAL MINOR

### REQUIREMENTS

At least 10 credits in educational psychology courses are required for a minor completed by students from other programs. Students from other programs must obtain a minor advisor in the program. The minor advisor will work with the student to plan an appropriate sequence of coursework. All courses must be at the 500 level or above. A grade of B or better in each course is required.

## PEOPLE

**Faculty:** Professors Brown (chair), Asmus, Bolt, Enright, Gettinger, Kalish, Kaplan, Kim, Kratochwill, Nathan, Puntambekar, Shaffer; Associate Professors Albers, Bellmore, Wollack; Assistant Professors Hubbard, Matthews, Rau, Steiner, Vlach; Clinical Professor McGivern

## EDUCATIONAL PSYCHOLOGY, M.S.

The Department of Educational Psychology offers the master of science and doctor of philosophy degrees in educational psychology. The programs for the M.S. and Ph.D. in educational psychology provide comprehensive knowledge of the field and intensive specialization in one of four areas of study and research: human development, learning sciences, quantitative methods, and school psychology.

The department provides for training in research. Many faculty members in the department conduct controlled research studies with human participants; schools and other agencies in the Madison area cooperate in facilitating such research projects. Principal research facilities include the School of Education's Wisconsin Center for Education Research, and the multidisciplinary Waisman Center.

## AREAS OF SPECIALIZATION

### HUMAN DEVELOPMENT

**Advisors:** Professors Bellmore, Brown, Enright, Hubbard, Kalish, Matthews, Vlach

The program in human development adopts a life-span approach to individual change. Studying development in context is an important component of the program, so that research can make conceptual/theoretical contributions to the understanding of human behavior and can address practical concerns of educators, parents, and others concerned with the developing person. A course of study provides a breadth and depth of knowledge about human development and educational psychology and encourages more detailed study in specific interest areas. Early in the program, students are exposed to general theories and issues in human development; specific developmental processes in childhood, adolescence, adulthood, and old age; as well as associated statistical methods and research practices.

In the latter part of the program, students exercise individual choice in selecting courses in subject matter that will broaden or deepen an understanding of human developmental processes. Such coursework may also extend to other programs of the university in which there is a research focus in human development.

### LEARNING SCIENCES

**Advisors:** Professors Kalish, Nathan, Puntambekar, Rau, Shaffer

This program area bridges learning sciences and educational practice. Scholarship encompasses the coordinated design and study of learning environments ranging from preschool to university education, and reaches outside of school to informal contexts for learning, like museums and after-school programs. Faculty interests include the design of technologies as tools for learning, prolonged longitudinal study of relations between teaching and learning, and the nature of knowledge in substantive domains of inquiry, like mathematics, science, and composition. The program of study emphasizes an apprenticeship

model of scholarship with early engagement in substantive problems of learning and teaching. Students work in concert with faculty to develop research studies in each of the first two years of study. Courses are coordinated to promote the development of research and communication skills, so that students can become involved with important problems in educational research. As students progress in the program, they continue to work with faculty, both within and outside of the department, to craft systematic investigations of learning environments.

## QUANTITATIVE METHODS

Advisors: Professors Bolt, Kaplan, Kim, Steiner, Wollack

Educational research has a strong tradition of employing state-of-the-art statistical and psychometric (psychological measurement) techniques. Researchers in all areas of education develop measuring instruments, design and conduct experiments and surveys, and analyze data resulting from these activities. Because of this tradition, quantitative methods has long been an area of specialization within educational psychology. Graduates in this area teach, serve as consultants to educational researchers, and conduct research on statistics and psychometrics in education-related fields. Within the program, the quantitative methods area offers the two major specializations of statistics and measurement.

The study of quantitative methods takes advantage of the range of resources at the University of Wisconsin–Madison and includes coursework in statistics, mathematics, and computer sciences, and in other units of the School of Education.

## SCHOOL PSYCHOLOGY

Advisors: Professors Albers, Asmus, Gettinger, Kratochwill

Clinical Professor: McGivern

The graduate program in school psychology leads to a Ph.D. in educational psychology with a scientist–scholar–practitioner model of professional training. Students prepare for positions as professors in colleges and universities, psychologists in elementary and secondary schools, and with other organizations or agencies that focus on psychological services to children, youth, and families. The program is fully accredited by the American Psychological Association and the National Association of School Psychologists.

The areas of professional practice of school psychologists include psychological assessment and psychodiagnostic evaluation, prevention and intervention procedures, consultation and program planning, and research and evaluation. The program also requires study of applied behavior analysis, cognitive-behavior therapy, social-learning theory and ecological–behavioral–systems theory. Applied experience and training are provided in individual and group work with both typical classroom populations and special groups, including individuals with developmental disabilities and others with special education needs. Included in the practicum and internship experience is work with families, classroom peer groups, and community and school systems.

## M.S. DEGREE PROGRAMS IN EDUCATIONAL PSYCHOLOGY WITH SPECIAL EMPHASES

Advisors: Professors Brown, Enright, Kalish

The special-emphasis master's degree program is designed for individuals who want to improve their knowledge base and skills for functioning in educational settings. The program is built around educator needs and offers a flexible blend of coursework, independent study, and practicum experiences. It is designed to provide the student with an

individualized program of theoretical and applied training, tailored to his or her interests, needs, and professional goals.

## MASTER OF SCIENCE FOR PROFESSIONAL EDUCATORS

The Master of Science for Professional Educators (MSPE) is a 30-credit master's degree program designed with a teaching professional's schedule in mind. Courses in the MSPE program emphasize practical strategies and applications. Participants are part of a two-year cohort learning group, completing a master's degree through a combination of technology-enhanced distance learning during the academic year and summer on-campus coursework.

## FUNDING

Students are eligible to compete for UW–Madison fellowships. A limited number of teaching and project assistantships are available within the department, and prospective students are encouraged to refer to the instructions for fellowships and assistantships contained in the program application information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available named option Professional Educator (MSPE)  
M.S., with available tracks in human development, learning science, quantitative methods, and school psychology

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

M.S.–Professional Educator named option: 30 credits  
M.S.–human development, and quantitative methods track: 33 credit  
M.S.–learning sciences track: 36 credits  
M.S.–school psychology track: 55 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

M.S.–Professional Educator named option: 30 credits  
M.S.–human development, and quantitative methods track: 27 credits  
M.S.–learning sciences track: 33 credits  
M.S.–school psychology track: 52 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## **PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

M.S.–Professional Educator named option: No credits from other institutions are allowed to count toward the degree.

M.S.–all other tracks: With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's is not allowed to satisfy requirements.

## **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

M.S. Professional Educator named option: No credits taken as a UW–Madison University Special student are allowed to count toward the degree.

M.S.–all other tracks: With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## **CREDITS PER TERM ALLOWED**

15 credits

## **PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

## **OVERALL GRADUATE GPA REQUIREMENT**

3.00

## **OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## **PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## **ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## **ASSESSMENT AND EXAMINATIONS**

Contact the program for information on required assessments and examinations.

## **TIME CONSTRAINTS**

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## **LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

## **ADMISSIONS**

For admission to graduate work, the department does not require a specific undergraduate major. However, it is preferred that applicants have completed approximately 18 credits in courses that provide a relevant foundation for further study in educational psychology. Neither certification as a teacher nor teaching experience is required. An undergraduate grade point average of at least 3.0 (4.0 basis) based on the last 60 semester hours of undergraduate coursework is requisite. Also essential are a statement of purpose, Graduate Record Exam (GRE) scores, and three letters of recommendation.

## **LEARNING OUTCOMES**

## **KNOWLEDGE AND SKILLS**

### **KNOWLEDGE**

- Students will acquire a strong foundation in current and past theories, research findings, and methodologies in their program area.
- Students will become acquainted with the implications of human diversity (in terms of individual abilities and orientations and sociocultural backgrounds) for research and practice in their chosen field of study.
- Students will develop critical thinking skills that promote rigorous evaluation of strengths and limitations in existing theory and research.

### **RESEARCH/EVALUATION**

- Students will learn the fundamentals of research design, data collection, and data analysis through participating in ongoing research or conducting their own research project(s).
- Students will be able to identify key features of high-quality research or program implementation/evaluation in their chosen field.

### **COMMUNICATION/CONSULTATION**

- Students will develop writing and oral skills needed to effectively communicate results of scientific research to academic, professional/practitioner, and lay audiences.
- Students will communicate effectively in collaborative work or consultation settings with professional colleagues.



- Students will become skilled communicators of issues in their research and program area for learners in formal classroom and informal learning settings.

## PROFESSIONAL CONDUCT

- Ethical Conduct
- Students will learn how to conduct research or program implementation/evaluation in accordance with ethical standards established in their field of inquiry.
- Students will know how to prepare materials required for review by boards overseeing the ethical conduct of research and program implementation or evaluation.

## PEOPLE

**Faculty:** Professors Brown (chair), Asmus, Bolt, Enright, Gettinger, Kalish, Kaplan, Kim, Kratochwill, Nathan, Puntambekar, Shaffer; Associate Professors Albers, Bellmore, Wollack; Assistant Professors Hubbard, Matthews, Rau, Steiner, Vlach; Clinical Professor McGivern

## EDUCATIONAL PSYCHOLOGY, PH.D.

The Department of Educational Psychology offers the master of science and doctor of philosophy degrees in educational psychology. The programs for the M.S. and Ph.D. in educational psychology provide comprehensive knowledge of the field and intensive specialization in one of four areas of study and research: human development, learning sciences, quantitative methods, and school psychology.

The department provides for training in research. Many faculty members in the department conduct controlled research studies with human participants; schools and other agencies in the Madison area cooperate in facilitating such research projects. Principal research facilities include the School of Education's Wisconsin Center for Education Research, and the multidisciplinary Waisman Center.

## AREAS OF SPECIALIZATION

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In the latter part of the program, students exercise individual choice in selecting courses in subject matter that will broaden or deepen an understanding of human developmental processes. Such coursework

may also extend to other programs of the university in which there is a research focus in human development.

## LEARNING SCIENCES

Advisors: Professors Kalish, Nathan, Puntambekar, Rau, Shaffer

This program area bridges learning sciences and educational practice. Scholarship encompasses the coordinated design and study of learning environments ranging from preschool to university education, and reaches outside of school to informal contexts for learning, like museums and after-school programs. Faculty interests include the design of technologies as tools for learning, prolonged longitudinal study of relations between teaching and learning, and the nature of knowledge in substantive domains of inquiry, like mathematics, science, and composition. The program of study emphasizes an apprenticeship model of scholarship with early engagement in substantive problems of learning and teaching. Students work in concert with faculty to develop research studies in each of the first two years of study. Courses are coordinated to promote the development of research and communication skills, so that students can become involved with important problems in educational research. As students progress in the program, they continue to work with faculty, both within and outside of the department, to craft systematic investigations of learning environments.

## QUANTITATIVE METHODS

Advisors: Professors Bolt, Kaplan, Kim, Steiner, Wollack

Educational research has a strong tradition of employing state-of-the-art statistical and psychometric (psychological measurement) techniques. Researchers in all areas of education develop measuring instruments, design and conduct experiments and surveys, and analyze data resulting from these activities. Because of this tradition, quantitative methods has long been an area of specialization within educational psychology. Graduates in this area teach, serve as consultants to educational researchers, and conduct research on statistics and psychometrics in education-related fields. Within the program, the quantitative methods area offers the two major specializations of statistics and measurement.

The study of quantitative methods takes advantage of the range of resources at the University of Wisconsin–Madison and includes coursework in statistics, mathematics, and computer sciences, and in other units of the School of Education.

## SCHOOL PSYCHOLOGY

Advisors: Professors Albers, Asmus, Gettinger, Kratochwill

Clinical Professor: McGivern

The graduate program in school psychology leads to a Ph.D. in educational psychology with a scientist–scholar–practitioner model of professional training. Students prepare for positions as professors in colleges and universities, psychologists in elementary and secondary schools, and with other organizations or agencies that focus on psychological services to children, youth, and families. The program is fully accredited by the American Psychological Association and the National Association of School Psychologists.

The areas of professional practice of school psychologists include psychological assessment and psychodiagnostic evaluation, prevention and intervention procedures, consultation and program planning, and research and evaluation. The program also requires study of applied behavior analysis, cognitive-behavior therapy, social-learning theory and ecological–behavioral–systems theory. Applied experience and training

are provided in individual and group work with both typical classroom populations and special groups, including individuals with developmental disabilities and others with special education needs. Included in the practicum and internship experience is work with families, classroom peer groups, and community and school systems.

## FUNDING

Students are eligible to compete for UW–Madison fellowships. A limited number of teaching and project assistantships are available within the department, and prospective students are encouraged to refer to the instructions for fellowships and assistantships contained in the program application information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D., with available tracks in human development, learning science, quantitative methods, and school psychology

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

Ph.D.—human development track: 56 credits

Ph.D.—learning sciences, and quantitative methods tracks: 54 credits

Ph.D.—school psychology track: 110 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

### TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

For admission to graduate work, the department does not require a specific undergraduate major. However, it is preferred that applicants have completed approximately 18 credits in courses that provide a relevant foundation for further study in educational psychology. Neither certification as a teacher nor teaching experience is required. An undergraduate grade point average of at least 3.0 (4.0 basis) based on the last 60 semester hours of undergraduate coursework is requisite. Also essential are a statement of purpose, Graduate Record Exam (GRE) scores, and three letters of recommendation.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### KNOWLEDGE

- Students will acquire a strong foundation in current and past theories, research findings, and methodologies in their program area.
- Students will demonstrate a knowledge of and sensitivity to human diversity in terms of individual abilities and orientations and sociocultural backgrounds.
- Students will develop critical thinking skills that promote rigorous evaluation of strengths and limitations in existing theory and research, synthesis of existing knowledge, and evidence based conclusions.
- Students will be able to identify issues in need of additional inquiry in their program area, as well as an understanding of conceptual and methodological approaches available to address these issues.
- Students will understand the process of securing funding to support their research and other professional activities.

#### RESEARCH / EVALUATION

- Students will retrieve, evaluate, and interpret professional and scientific literature; they will use this information to develop or adapt theoretical frameworks and derive testable hypotheses or predictions for their own research or program evaluation projects.
- Students will learn to design realistic and feasible research or assessment projects in their program area and to prepare necessary protocols that are sensitive to the backgrounds of individuals who are the focus of their work.
- Students will conduct independent research and analyze and interpret resulting data.

#### COMMUNICATION / CONSULTATION

- Students will write clear and concise reports of their research or program evaluations that are appropriate to the intended audiences, which may include fellow scholars (via scholarly journals), practitioners (via practitioner journals or reports), and lay audiences (via online or other published reports).

- Students will learn to make articulate, informative presentations of their research findings at scientific conferences in both formal and informal settings, professional settings such as in-services to educators, and programs for lay audiences.
- Students will become skilled communicators of issues in their research and program area for diverse audiences in a variety of learning settings, including formal educational settings (e.g., classroom teaching).
- Students will communicate effectively in collaborative work or consultation settings with professional colleagues.

### PROFESSIONAL CONDUCT

- Ethical Conduct
- Students will conduct research or program implementation/evaluation in accordance with ethical standards established in their field of inquiry.
- Students will know how to prepare materials required for review by boards overseeing the ethical conduct of research and program implementation or evaluation.

## PEOPLE

**Faculty:** Professors Brown (chair), Asmus, Bolt, Enright, Gettinger, Kalish, Kaplan, Kim, Kratochwill, Nathan, Puntambekar, Shaffer; Associate Professors Albers, Bellmore, Wollack; Assistant Professors Hubbard, Matthews, Rau, Steiner, Vlach; Clinical Professor McGivern

## PREVENTION AND INTERVENTION SCIENCE, DOCTORAL MINOR

The doctoral minor and graduate/professional certificate program has three special features:

1. Training emphasizes programmatic efforts that seek to prevent the development of problematic outcomes and to promote optimal functioning in individuals or groups across the life course.
2. Preventive interventions are implemented and evaluated in family, school, and community contexts—their outcome is investigated in interaction within these contexts.
3. Training emphasizes methodological and statistical training and their applications in prevention research. Particular attention is given to the concentrations of interventions in social services, health, and education; family and community studies; social policy; and methodology.

This multidisciplinary program addresses contemporary health and social issues facing at-risk and vulnerable groups across the life course. Participating units are Rehabilitation Psychology and Special Education; Educational Psychology; Human Development and Family Studies; Nursing; Population Health Sciences; and Social Work. Training leads to a doctoral minor (Option A) or a graduate/professional certificate in prevention and intervention science.

## REQUIREMENTS

### TRAINING OPTIONS

Students may earn a doctoral minor OR graduate/professional certificate.

Doctoral students may earn the doctoral minor in prevention and intervention science. The doctoral minor (Option A) in prevention science requires 10 credits in approved courses. It is a named minor that is listed on student transcripts.

Graduate students may earn a graduate/professional certificate in prevention science by completing a total of 16 credits in approved courses. One course must be in methodology. Students can also use a research practicum of 3 credits toward the certificate requirement.

### AREAS OF CONCENTRATION

Four areas of concentration are available. Students must select one as a major emphasis.

#### INTERVENTIONS IN SOCIAL SERVICES, HEALTH, AND EDUCATION

The design, implementation, evaluation, and dissemination of a variety of programs in education, health, and social welfare are of high societal priority and are reflected in training. School-based programs are increasingly viewed as key strategies of educational reform. Social service and health delivery to children, families, and adults continue to undergo substantial innovation. The promotion of health and development of individuals and groups with and without special health-care needs also is a focal point of interventions.

#### SOCIAL POLICY

This area concerns how social policies and issues affect human and family behavior across the life course. Substantive areas include, among others, child care, poverty, welfare reform, school reform, and health-care reform. An emphasis is given to large-scale policies and programs as well as dissemination and use.

#### FAMILY AND COMMUNITY STUDIES

How family and community contexts and processes affect individuals is a key issue for the development and analysis of preventive interventions, and for basic research on families and communities. Family and community-based programs are central to addressing myriad social problems and issues. The relationship between family development and other major social contexts such as neighborhoods, communities, and service systems also are important.

#### METHODOLOGY

An ever-expanding number of quantitative and qualitative methods are available for conducting prevention research. Basic and advanced statistical and methodological training are essential to high-quality graduate training. Gaining understanding and experience in conducting research in field settings is key to developing methodological skills. Some topics to be covered in training include structural equation modeling, hierarchical linear modeling, growth curve modeling, and ethnography.

### COURSES

Two courses in prevention science, a practicum, and approved elective courses are required of students seeking the doctoral minor or graduate/professional certificate. It is recommended that the two courses in

prevention science be taken in the second year of a student's graduate program after introductory courses in theory and a substantive area have been taken in the student's home department.

- Prevention Science (ED PSYCH/HDFS/NURSING/SOC WORK 880, 3 cr)  
This course provides an interdisciplinary overview to prevention theory, research, and practice. A common core of concepts, methods, and terminology is presented. Among the topics covered are evidence based prevention science, theories and concepts, intervention development and testing, communities as partners, response to intervention, cost benefit analyses, and registries of prevention programs. A risk and protective factors framework is prominent and applied to individuals, families, and groups. This course is typically offered during the fall semester.
- Capstone Seminar in Prevention Science (ED PSYCH/HDFS/NURSING/SOC WORK 881, 1 cr)  
Participating and interested faculty, scholars, and professionals discuss their work as well as emerging issues in the field. This biweekly two-hour brown bag introduces students to faculty in other departments and professionals in the community. This course, typically offered each spring, should be taken after completing 880, the prevention science course, and at or near the end of the minor program.
- Practicum  
Students must participate in a prevention-related research project (practicum) with university faculty as part of the training program. The practicum will result in the completion of a product (e.g., evaluation or intervention report, program or training manual) associated with one of the four concentration areas. This project provides opportunities to apply prevention concepts, methods, and approaches to important educational, health, or social issues and problems. The practicum can be used to supplement the student's educational program without course credit or can be taken for 1–3 research credits that count toward satisfying the requirements of the minor or certificate program.  
On-campus institutes that are likely to provide training experiences for the practicum and for student research include the Institute on Aging, Waisman Center on Mental Retardation and Human Development, Institute for Research on Poverty, and Wisconsin Center for Educational Research.
- Elective Courses  
Students should select two to four additional courses in one of the areas of concentration. Examples of courses that meet the requirements of the minor and certificate program are listed below. Courses required for a student's major area of study may be counted toward the certificate program but not the doctoral minor. Other courses can be recommended by students or faculty and are subject to approval of the program faculty

## ADMISSIONS

Application information for the doctoral minor and graduate/professional certificate are available online (see Web site). Completed applications must be signed by faculty advisors and submitted to Carol Aspinwall, Coordinator of Doctoral Student Academic Services, School of Nursing, CSC K6/133, 600 Highland Ave, Madison, WI 53792; caaspinwall@wisc.edu.

## PEOPLE

**Faculty:** Professors Carter (Rehabilitation Psychology and Special Education), Albers (Educational Psychology), Magnuson (Social Work), Riesch (Nursing), Sparks (Human Development and Family Studies)

## PREVENTION AND INTERVENTION SCIENCE, GRADUATE/ PROFESSIONAL CERTIFICATE

Prevention and Intervention Science, Graduate/Professional Certificate

The doctoral minor and graduate/professional certificate program has three special features:

1. Training emphasizes programmatic efforts that seek to prevent the development of problematic outcomes and to promote optimal functioning in individuals or groups across the life course.
2. Preventive interventions are implemented and evaluated in family, school, and community contexts—their outcome is investigated in interaction within these contexts.
3. Training emphasizes methodological and statistical training and their applications in prevention research. Particular attention is given to the concentrations of interventions in social services, health, and education; family and community studies; social policy; and methodology.

This multidisciplinary program addresses contemporary health and social issues facing at-risk and vulnerable groups across the life course. Participating units are Rehabilitation Psychology and Special Education; Educational Psychology; Human Development and Family Studies; Nursing; Population Health Sciences; and Social Work. Training leads to a doctoral minor (Option A) or a graduate/professional certificate in prevention and intervention science.

## REQUIREMENTS

### TRAINING OPTIONS

Students may earn a doctoral minor OR graduate/professional certificate.

Doctoral students may earn the doctoral minor in prevention and intervention science. The doctoral minor (Option A) in prevention science requires 10 credits in approved courses. It is a named minor that is listed on student transcripts.

Graduate students may earn a graduate/professional certificate in prevention science by completing a total of 16 credits in approved courses. One course must be in methodology. Students can also use a research practicum of 3 credits toward the certificate requirement.

### AREAS OF CONCENTRATION

Four areas of concentration are available. Students must select one as a major emphasis.

### INTERVENTIONS IN SOCIAL SERVICES, HEALTH, AND EDUCATION

The design, implementation, evaluation, and dissemination of a variety of programs in education, health, and social welfare are of high societal priority and are reflected in training. School-based programs are increasingly viewed as key strategies of educational reform. Social service and health delivery to children, families, and adults continue to undergo substantial innovation. The promotion of health and development of individuals and groups with and without special health-care needs also is a focal point of interventions.

### SOCIAL POLICY

This area concerns how social policies and issues affect human and family behavior across the life course. Substantive areas include, among others, child care, poverty, welfare reform, school reform, and health-care reform. An emphasis is given to large-scale policies and programs as well as dissemination and use.

### FAMILY AND COMMUNITY STUDIES

How family and community contexts and processes affect individuals is a key issue for the development and analysis of preventive interventions, and for basic research on families and communities. Family and community-based programs are central to addressing myriad social problems and issues. The relationship between family development and other major social contexts such as neighborhoods, communities, and service systems also are important.

### METHODOLOGY

An ever-expanding number of quantitative and qualitative methods are available for conducting prevention research. Basic and advanced statistical and methodological training are essential to high-quality graduate training. Gaining understanding and experience in conducting research in field settings is key to developing methodological skills. Some topics to be covered in training include structural equation modeling, hierarchical linear modeling, growth curve modeling, and ethnography.

### COURSES

Two courses in prevention science, a practicum, and approved elective courses are required of students seeking the doctoral minor or graduate/professional certificate. It is recommended that the two courses in prevention science be taken in the second year of a student's graduate program after introductory courses in theory and a substantive area have been taken in the student's home department.

- Prevention Science (ED PSYCH/HDFS/NURSING/SOC WORK 880, 3 cr)  
This course provides an interdisciplinary overview to prevention theory, research, and practice. A common core of concepts, methods, and terminology is presented. Among the topics covered are evidence based prevention science, theories and concepts, intervention development and testing, communities as partners, response to intervention, cost benefit analyses, and registries of prevention programs. A risk and protective factors framework is prominent and applied to individuals, families, and groups. This course is typically offered during the fall semester.
- Capstone Seminar in Prevention Science (ED PSYCH/HDFS/NURSING/SOC WORK 881, 1 cr)  
Participating and interested faculty, scholars, and professionals discuss their work as well as emerging issues in the field. This biweekly two-hour brown bag introduces students to faculty in other

departments and professionals in the community. This course, typically offered each spring, should be taken after completing 880, the prevention science course, and at or near the end of the minor program.

- **Practicum**

Students must participate in a prevention-related research project (practicum) with university faculty as part of the training program. The practicum will result in the completion of a product (e.g., evaluation or intervention report, program or training manual) associated with one of the four concentration areas. This project provides opportunities to apply prevention concepts, methods, and approaches to important educational, health, or social issues and problems. The practicum can be used to supplement the student's educational program without course credit or can be taken for 1–3 research credits that count toward satisfying the requirements of the minor or certificate program.

On-campus institutes that are likely to provide training experiences for the practicum and for student research include the Institute on Aging, Waisman Center on Mental Retardation and Human Development, Institute for Research on Poverty, and Wisconsin Center for Educational Research.

- **Elective Courses**

Students should select two to four additional courses in one of the areas of concentration. Examples of courses that meet the requirements of the minor and certificate program are listed below. Courses required for a student's major area of study may be counted toward the certificate program but not the doctoral minor. Other courses can be recommended by students or faculty and are subject to approval of the program faculty.

## ADMISSIONS

Application information for the doctoral minor and graduate/professional certificate are available online (see Web site). Completed applications must be signed by faculty advisors and submitted to Carol Aspinwall, Coordinator of Doctoral Student Academic Services, School of Nursing, CSC K6/133, 600 Highland Ave, Madison, WI 53792; caaspinwall@wisc.edu.

## PEOPLE

**Faculty:** Professors Carter (Rehabilitation Psychology and Special Education), Albers (Educational Psychology), Magnuson (Social Work), Riesch (Nursing), Sparks (Human Development and Family Studies)

# ELECTRICAL AND COMPUTER ENGINEERING

**Administrative Unit:** Electrical and Computer Engineering

**College/School:** College of Engineering

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

**Named Options:** Power Engineering (M.S.); Signal Processing and Machine Learning (M.S.)

The Department of Electrical and Computer Engineering (ECE) has facilities for graduate study and research leading to the master of science (M.S.) degree and the doctor of philosophy (Ph.D.) degree in electrical engineering. The master's program emphasizes the enhancement of professional knowledge and research techniques. The doctorate is a research degree emphasizing creativity and original approaches to problem-solving in electrical and computer engineering. The regulations of the Graduate School and the department must be followed to complete the requirements for each degree.

Graduate courses are offered in all basic areas of electrical engineering. The following eight specializations can be pursued in depth: automatic control systems; biomedical engineering; communication and signal processing; computer engineering; electromagnetic fields and waves; energy and power systems; plasmas and controlled fusion; solid state electronics and photonics.

Laboratory facilities provide opportunities for research in biomedical computing; computer-aided engineering; computer architecture; data acquisition and simulation; digital control and instrumentation; digital engineering; digital microprocessors; digital signal processing; medical instrumentation; microelectronics and integrated-circuit fabrication; microwave devices, circuits, and antennas; photonics and optics; plasmas and controlled fusion; rotating electric machines and power electronics; speech processing; thin-film devices; VLSI systems; and x-ray lithography.

Power engineering courses are offered both on campus and online. The M.S. in electrical engineering, named option: power engineering is an online degree that includes a full curriculum of courses covering both the theory and applications of power electronics, electric machines, adjustable-speed drives, power systems, and alternative energy through electrical and computer engineering. A companion online M.S. program is also offered in mechanical engineering. Please visit the Department of Engineering Professional Development's website (<https://epd.wisc.edu/online-degree/electrical-engineering-power-engineering>) for information regarding the online M.S. degree.

There are opportunities for research at both M.S. and Ph.D. levels.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Electrical Engineering, Doctoral Minor (p. 255)
- Electrical Engineering, M.S. (p. 255)
- Electrical Engineering, Ph.D. (p. 257)

## PEOPLE

**Faculty:** Professors Booske (chair), Gubner (vice-chair), Anderson, Barmish, Boston, Botez, DeMarco, Hagness, Hitchon, Hu, Jahns, Jiang, Knezevic, Lesieutre, Lipasti, Ma, Mawst, Nowak, Ramanathan, Sayeed, Sethares, Shohet, van der Weide, Vanveen, Venkataramanan, Wendt; Associate Professors Behdad, Davoodi, Milenkovic, Morrow, Willett; Assistant Professors Han, Kats, Lessard, Li, Ludois, Yu, Zhang

## ELECTRICAL ENGINEERING, DOCTORAL MINOR

### REQUIREMENTS

Ph.D. students from other UW–Madison graduate programs who wish to earn a minor degree in ECE are required to complete a minimum of 9 credits of ECE courses numbered 400 or above, approved by the ECE department, with grades of B or better. In addition, at least three of these 9 credits must be earned in courses numbered 700 or above. At most, one course cross-listed with the student's major program may be counted toward the minor credits provided such a course is taught by ECE faculty. Moreover, such a course cannot be applied to satisfy the student's major requirements. No examinations are required other than those given in the courses.

## PEOPLE

**Faculty:** Professors Booske (chair), Gubner (vice-chair), Anderson, Barmish, Boston, Botez, DeMarco, Hagness, Hitchon, Hu, Jahns, Jiang, Knezevic, Lesieutre, Lipasti, Ma, Mawst, Nowak, Ramanathan, Sayeed, Sethares, Shohet, van der Weide, Vanveen, Venkataramanan, Wendt; Associate Professors Behdad, Davoodi, Milenkovic, Morrow, Willett; Assistant Professors Han, Kats, Lessard, Li, Ludois, Yu, Zhang

## ELECTRICAL ENGINEERING, M.S.

The Department of Electrical and Computer Engineering (ECE) has facilities for graduate study and research leading to the master of science (M.S.) degree and the doctor of philosophy (Ph.D.) degree in electrical engineering. The master's program emphasizes the enhancement of professional knowledge and research techniques. The doctorate is a research degree emphasizing creativity and original approaches to problem-solving in electrical and computer engineering. The regulations of the Graduate School and the department must be followed to complete the requirements for each degree.

Graduate courses are offered in all basic areas of electrical engineering. The following eight specializations can be pursued in depth: automatic control systems; biomedical engineering; communication and signal processing; computer engineering; electromagnetic fields and waves; energy and power systems; plasmas and controlled fusion; solid state electronics and photonics.

Laboratory facilities provide opportunities for research in biomedical computing; computer-aided engineering; computer architecture; data acquisition and simulation; digital control and instrumentation; digital

engineering; digital microprocessors; digital signal processing; medical instrumentation; microelectronics and integrated-circuit fabrication; microwave devices, circuits, and antennas; photonics and optics; plasmas and controlled fusion; rotating electric machines and power electronics; speech processing; thin-film devices; VLSI systems; and x-ray lithography.

Power engineering courses are offered both on campus and online. The M.S. in electrical engineering, named option: power engineering is an online degree that includes a full curriculum of courses covering both the theory and applications of power electronics, electric machines, adjustable-speed drives, power systems, and alternative energy through electrical and computer engineering. A companion online M.S. program is also offered in mechanical engineering. Please visit the Department of Engineering Professional Development's website (<https://epd.wisc.edu/online-degree/electrical-engineering-power-engineering>) for information regarding the online M.S. degree.

There are opportunities for research at both M.S. and Ph.D. levels.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available named option Power Engineering

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, up to 7 credits numbered 400 or above can be counted toward the minimum graduate degree credit requirement. Up to

7 credits of ECE courses numbered 700 or above can be counted toward the minimum graduate coursework (50%) requirement. No credits can be counted toward the minimum graduate residence credit requirement.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 9 credits of coursework numbered 400 or above taken as a UW–Madison University Special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement. Courses numbered 700 or above taken as a UW–Madison Special student toward the minimum graduate coursework (50%) requirement. Coursework earned five or more years prior to admission is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Students may select one of three available plans for completing the degree; each plan has its own set of required courses. Contact the department for a list of possible courses.

Two semesters of graduate seminars are also required.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

1. A grade of B or better in any graduate course is acceptable. A grade of S in E C E 790 Master's Research or Thesis, E C E 890 Pre-Dissertator's Research and E C E 990 Research or Thesis is acceptable.
2. A grade of BC in an ECE course is acceptable, provided the total cumulative GPA for graduate ECE courses is greater than or equal to 3.00.
3. A grade of C or lower in an ECE course is not acceptable.
4. A grade of BC or lower in an independent study course (E C E 699 Advanced Independent Study or E C E 999 Advanced Independent Study) or a grade of U in Research or Thesis (E C E 790, E C E 890 or E C E 990) is not acceptable.
5. A grade of BC or C in a non-ECE course is acceptable only if approved by the Graduate Committee.
6. If students are unable to complete coursework by the end of the term, an instructor may enter a temporary grade of I for incomplete. If students have not resolved all Incompletes by the end of the next fall or spring term in which they are enrolled, they are considered in bad standing by the Graduate School; however, the instructor may impose an earlier deadline. If not resolved within this time period, the grade is considered unsatisfactory and will remain an "I" unless changed to a final grade by the instructor. An unresolved I grade lapses to a grade of PI after five years. Students may be placed on probation or suspended from the Graduate School for failing to complete the work and receive a final grade in a timely fashion. Outstanding Incompletes must be resolved before a degree is granted.

### PROBATION POLICY

Students must be in good academic standing with the Graduate School, their program, and their advisor. The Graduate School regularly reviews the record of any student who received grades of BC, C, D, F, or I in



graduate-level courses (300 or above), or grades of U in research and thesis. This review could result in academic probation with a hold on future enrollment, and the student may be suspended from graduate studies.

The Graduate School may also put students on probation for incompletes not cleared within one term. All incomplete grades must be resolved before a degree is granted.

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time) the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

New students must declare an advisor by the end of the second week of classes in the first semester.

## ASSESSMENTS AND EXAMINATIONS

A thesis, a project, or a specified course sequence must be completed, depending upon which degree plan the student follows.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

An applicant must have a bachelor's degree from a regionally accredited U.S. institution or a comparable degree from an international institution. International applications can find specific information for their country on the Graduate School Admission Requirements (<http://grad.wisc.edu/admissions/requirements>) page. The department welcomes applications from scientific, engineering, and mathematical disciplines other than ECE.

A grade point average of 3.0 (4.0 basis) is the minimum requirement for admission consideration. Submission of three letters of recommendation, a statement of purpose, an uploaded transcript, and the Graduate Record Exam (GRE) general test scores is required for all applicants to the on-campus degree programs. International students may need to also submit English Proficiency test scores. More information on admission to the ECE graduate program can be found here (<https://epd.wisc.edu/online-degree/electrical-engineering-power-engineering/#/admission>).

The ECE department uses an online application process (<http://grad.wisc.edu/apply>).

Students interested in pursuing the online M.S. degree must complete the capstone certificate in power conversion and control offered by the Department of Engineering Professional Development. More information on this certificate and other admission requirements can be found here (<http://epd.wisc.edu/online-degree/electrical-engineering-power-engineering/#/admission>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

### PROFESSIONAL CONDUCT

- recognize and apply principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Booske (chair), Gubner (vice-chair), Anderson, Barmish, Boston, Botez, DeMarco, Hagness, Hitchon, Hu, Jahns, Jiang, Knezevic, Lesieutre, Lipasti, Ma, Mawst, Nowak, Ramanathan, Sayeed, Sethares, Shohet, van der Weide, Vanveen, Venkataramanan, Wendt; Associate Professors Behdad, Davoodi, Milenkovic, Morrow, Willett; Assistant Professors Han, Kats, Lessard, Li, Ludois, Yu, Zhang

## ELECTRICAL ENGINEERING, PH.D.

The Department of Electrical and Computer Engineering (ECE) has facilities for graduate study and research leading to the master of science (M.S.) degree and the doctor of philosophy (Ph.D.) degree in electrical engineering. The master's program emphasizes the enhancement of professional knowledge and research techniques. The doctorate is a research degree emphasizing creativity and original approaches to problem-solving in electrical and computer engineering. The regulations of the Graduate School and the department must be followed to complete the requirements for each degree.

Graduate courses are offered in all basic areas of electrical engineering. The following eight specializations can be pursued in depth: automatic control systems; biomedical engineering; communication and signal processing; computer engineering; electromagnetic fields and waves; energy and power systems; plasmas and controlled fusion; solid state electronics and photonics.

Laboratory facilities provide opportunities for research in biomedical computing; computer-aided engineering; computer architecture; data acquisition and simulation; digital control and instrumentation; digital engineering; digital microprocessors; digital signal processing; medical instrumentation; microelectronics and integrated-circuit fabrication; microwave devices, circuits, and antennas; photonics and optics;

plasmas and controlled fusion; rotating electric machines and power electronics; speech processing; thin-film devices; VLSI systems; and x-ray lithography.

Power engineering courses are offered both on campus and online. The M.S. in electrical engineering, named option: power engineering is an online degree that includes a full curriculum of courses covering both the theory and applications of power electronics, electric machines, adjustable-speed drives, power systems, and alternative energy through electrical and computer engineering. A companion online M.S. program is also offered in mechanical engineering. Please visit the Department of Engineering Professional Development's website (<https://epd.wisc.edu/online-degree/electrical-engineering-power-engineering>) for information regarding the online M.S. degree.

There are opportunities for research at both M.S. and Ph.D. levels.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT:

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, up to 7 credits numbered 400 or above can be counted toward the minimum graduate degree credit requirement. Up to 7 credits of ECE courses numbered 700 or above can be counted toward the minimum graduate coursework (50%) requirement. No credits can be counted toward the minimum graduate residence credit requirement.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 9 credits of coursework numbered 400 or above taken as a UW–Madison University Special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement. Courses numbered 700 or above taken as a UW–Madison Special student toward the minimum graduate coursework (50%) requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Two semesters of graduate seminars are required.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete coursework in a primary area, a secondary area, and one or more minor areas. Students are expected to consult with their advisors concerning minor/breadth requirements.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

1. A grade of B or better in any graduate course is acceptable. A grade of S in E C E 790 Master's Research or Thesis, E C E 890 Pre-Dissertator's Research and E C E 990 Research or Thesis is acceptable.
2. A grade of BC in an ECE course is acceptable, provided the total cumulative GPA for graduate ECE courses is greater than or equal to 3.00.
3. A grade of C or lower in an ECE course is not acceptable.
4. A grade of BC or lower in an independent study course (E C E 699 Advanced Independent Study or E C E 999 Advanced Independent Study) or a grade of U in Research or Thesis (E C E 790, E C E 890 or E C E 990) is not acceptable.
5. A grade of BC or C in a non-ECE course is acceptable only if approved by the Graduate Committee.
6. If students are unable to complete coursework by the end of the term, an instructor may enter a temporary grade of I for incomplete. If students have not resolved all Incompletes by the end of the next fall or spring term in which they are enrolled, they are considered in bad standing by the Graduate School; however, the instructor may impose an earlier deadline. If not resolved within this time period, the grade is considered unsatisfactory and will remain an "I" unless changed to a final grade by the instructor. An unresolved I grade lapses to a grade of PI after five years. Students may be placed on probation or suspended from the Graduate School for failing to complete the work

and receive a final grade in a timely fashion. Outstanding Incompletes must be resolved before a degree is granted.

## PROBATION POLICY

Students must be in good academic standing with the Graduate School, their program, and their advisor. The Graduate School regularly reviews the record of any student who received grades of BC, C, D, F, or I in graduate-level courses (300 or above), or grades of U in research and thesis. This review could result in academic probation with a hold on future enrollment, and the student may be suspended from graduate studies.

The Graduate School may also put students on probation for incompletes not cleared within one term. All incomplete grades must be resolved before a degree is granted.

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time) the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

New students must declare an advisor by the end of the second week of classes in the first semester.

## ASSESSMENTS AND EXAMINATIONS

Qualifying and preliminary examinations are required.

## TIME CONSTRAINTS

The qualifying exam must be taken in the fourth semester of study. The preliminary examination must be passed in the fourth year of study.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

An applicant must have a bachelor's degree from a regionally accredited U.S. institution or a comparable degree from an international institution.

International applications can find specific information for their country on the Graduate School Admission Requirements (<https://grad.wisc.edu/admissions>) page. The department welcomes applications from scientific, engineering, and mathematical disciplines other than ECE.

A grade point average of 3.0 (4.0 basis) is the minimum requirement for admission consideration. Submission of three letters of recommendation, a statement of purpose, an uploaded transcript, and the Graduate Record Exam (GRE) general test scores is required for all applicants to the on-campus degree programs. International students may need to also submit English Proficiency test scores. More information on admission to the ECE graduate program can be found here (<https://epd.wisc.edu/online-degree/electrical-engineering-power-engineering/#/admission>).

The ECE department uses an online application process (<http://grad.wisc.edu/apply>).

Students interested in pursuing the online M.S. degree must complete the capstone certificate in power conversion and control offered by the Department of Engineering Professional Development. More information on this certificate and other admission requirements can be found here (<http://epd.wisc.edu/online-degree/electrical-engineering-power-engineering/#/admission>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate an ability to synthesize knowledge from a subset of the biological, physical, and social sciences to help frame problems critical to the future of their discipline.
- conduct original research.
- demonstrate an ability to create new knowledge and communicate it to their peers.

### PROFESSIONAL CONDUCT

- fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Booske (chair), Gubner (vice-chair), Anderson, Barmish, Boston, Botez, DeMarco, Hagness, Hitchon, Hu, Jahns, Jiang, Knezevic, Lesieutre, Lipasti, Ma, Mawst, Nowak, Ramanathan, Sayeed, Sethares, Shohet, van der Weide, Vanveen, Venkataramanan, Wendt; Associate Professors Behdad, Davoodi, Milenkovic, Morrow, Willett; Assistant Professors Han, Kats, Lessard, Li, Ludois, Yu, Zhang

# ENGINEERING PHYSICS

**Administrative Unit:** Engineering Physics

**College/School:** College of Engineering

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S. in Engineering Mechanics; M.S. in Nuclear Engineering and Engineering Physics; Ph.D. in Engineering Mechanics; Ph.D. in Nuclear Engineering and Engineering Physics

**Minors and Certificates:** Doctoral Minor in Engineering Mechanics; Doctoral Minor in Nuclear Engineering

A broad program of instruction and research is offered in the principles of the interaction of radiation with matter and their applications, and in several areas of engineering physics. The program has strong engineering and applied science components. It emphasizes several areas of activity, including the research, design, development, and deployment of fission reactors; fusion engineering; plasma physics; radiation damage to materials; applied superconductivity and cryogenics; and large-scale computing in engineering science.

The master's degree may be pursued as a terminal degree in the fission area and in various engineering physics areas, but it is not generally recommended as a final degree in fusion research; students interested in fusion should plan to pursue the Ph.D. degree. About 40 percent of the current graduate students hold undergraduate degrees in nuclear engineering, about 40 percent in physics, and about 20 percent in other disciplines such as mechanical engineering, electrical engineering, mathematics, and materials science.

The department is considered to have one of the top five nuclear engineering programs in the nation over the last 40 years. It incorporates several research organizations including the Wisconsin Institute of Nuclear Systems, the Pegasus Toroidal Experiment Program, the Fusion Technology Institute, and the Center for Plasma Theory and Computation.

Research may be performed in areas including next generation fission reactor engineering; fluid and heat transfer modeling for transient analysis; reactor monitoring and diagnostics; fuel cycle analysis; magnetic and inertial confinement fusion reactor engineering, including the physics of burning plasmas, plasma-wall interactions, neutron transport, tritium breeding, radiation damage, and liquid-metal heat transfer; experimental and theoretical studies of plasmas including radio frequency heating, magnetic confinement, plasma instabilities, and plasma diagnostics; industrial plasma physics, such as plasma processing and plasma source ion implantation; superconducting magnets and cryogenics; and theoretical and experimental studies of the damage to materials in fission and fusion reactors.

The department places considerable emphasis on establishing research teams or group research, as well as traditional research activity by individual faculty members and their students. The groups frequently involve faculty, scientific staff, and graduate students from several departments, adding a strong interdisciplinary flavor to the research.

Students sometimes perform thesis work at national laboratories such as Argonne National Laboratory, Idaho National Laboratory, Princeton Plasma Physics Laboratory, and Los Alamos National Laboratory.

The master of science and doctor of philosophy degrees in engineering mechanics are offered within a graduate program covering contemporary areas in both theoretical and applied mechanics. With the guidance

of a major professor, a program can be designed to meet an individual student's needs and interests.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE PROFESSIONAL/CERTIFICATES

- Engineering Mechanics, Doctoral Minor (p. 260)
- Engineering Mechanics, M.S. (p. 261)
- Engineering Mechanics, Ph.D. (p. 262)
- Nuclear Engineering and Engineering Physics, M.S. (p. 264)
- Nuclear Engineering and Engineering Physics, Ph.D. (p. 266)
- Nuclear Engineering, Doctoral Minor (p. 268)

## PEOPLE

**Faculty:** Professors T. Allen, Blanchard (chair), Bisognano, Bonazza, Crone, Drugan, Fonck, Hegna, Henderson, Kammer, Kulcinski, Lakes, Moses, Pfothenhauer, Plesha, Smith, Sovinec, Waleffe, Wilson; Associate Professors M. Allen, Witt; Assistant Professor Schmitz; Affiliate Professors Bednarz, Bier, Deluca, Graham, Ma, Mackie, Miller, Morgan, Nellis, Porter, Robertson, Szlufarska, Thomadsen, Trujillo, Vanderby

## ENGINEERING MECHANICS, DOCTORAL MINOR

### REQUIREMENTS

1. A minimum of 10 credits in EMA courses, including 3 credits in courses at the 700 level or above
  - a. All courses used for the minor must be 300 level or above taken after the bachelor's degree.
  - b. Ordinarily only one course (maximum of 3 credits) of independent study is allowed (E M A 599 Independent Study, E M A 690 Master's Research).
  - c. Research and thesis courses may not be used for the minor.
  - d. No more than 5 credits completed five or more years prior to admission to the Ph.D. major may be used.
  - e. Courses taken 10 or more years ago may not be used.
  - f. Courses taken pass/fail or for audit may not be used.
  - g. Courses with grades of S given in courses graded on a credit/no credit basis are acceptable.
2. A GPA of 3.0 must be maintained for the minor.
3. A maximum of 6 credits may be transferred from other institutions to satisfy these requirements.
4. The minor program must be approved by the department chair.
5. A student who has earned an M.S. degree in engineering mechanics will be considered to have fulfilled the minor requirements.

## PEOPLE

**Faculty:** Professors T. Allen, Blanchard (chair), Bisognano, Bonazza, Crone, Drugan, Fonck, Hegna, Henderson, Kammer, Kulcinski, Lakes, Moses, Pfothenhauer, Plesha, Smith, Sovinec, Waleffe, Wilson; Associate

Professors M. Allen, Witt; Assistant Professor Schmitz; Affiliate Professors Bednarz, Bier, Deluca, Graham, Ma, Mackie, Miller, Morgan, Nellis, Porter, Robertson, Szlufarska, Thomadsen, Trujillo, Vanderby

## ENGINEERING MECHANICS, M.S.

The master of science and doctor of philosophy degrees in engineering mechanics are offered within a graduate program covering contemporary areas in both theoretical and applied mechanics. With the guidance of a major professor, a program can be designed to meet an individual student's needs and interests.

The program is broadly structured into several main areas of instruction and research interests in mechanics of materials and astronautics: continuum mechanics, computational mechanics, dynamics and vibration, fluid mechanics, nanomechanics, solid mechanics, and biomechanics. Related fields in which minor work may be done include civil and environmental engineering, chemical and biological engineering, electrical and computer engineering, materials science, mechanical engineering, nuclear engineering and engineering physics, physics, geological engineering and geology, mathematics, statistics, and computer science.

Current faculty research interests include adhesive-bonded joints; composites; failure criteria; analytical and computational solid mechanics; analytical and computational dynamics; multibody dynamics; analytical and computational active and passive space-structure control systems; dynamic stability; nonlinear fracture mechanics of traditional and advanced materials; continuum mechanics; modal analysis; nanomechanics and nanotribology; fluid-structure interaction; non-Newtonian fluid flow; structural mechanics; viscoelasticity; viscoplasticity; cell mechanics; and biomechanics.

Laboratories are well equipped for experimental testing and research; these include holography, Moire, atomic force microscopy, vibration testing, and other optical methods for experimental mechanics research. The department has access to collegewide facilities. The Wisconsin Laboratory for Structures and Materials Testing has facilities for testing large structures, fatigue and vibration labs, and complements the department's laboratories. The Materials Science Center provides state-of-the-art instrumentation, support facilities, and expert technical assistance for research and education in materials. Its facilities include scanning and transmission electron microscopes, image processing and analysis systems, surface and thin film characterization facilities, and x-ray diffraction facilities.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

15 of the required 30 credits must be in graduate-level coursework from EMA, math, physics, computer science, or any other engineering department except EPD; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With faculty approval, students who have received their undergraduate degree from UW-Madison may apply up to 7 credits numbered 400 or above toward the minimum graduate degree credit requirement. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. No credits can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

With faculty approval, students who have received an ABET-accredited undergraduate degree (not including UW-Madison) may be eligible to apply up to 7 credits of their undergraduate coursework toward the Minimum Graduate Degree Credit Requirement. No credits can be counted toward the Minimum Graduate Residence Credit Requirement, nor the Minimum Graduate Coursework (50%) Requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 400 or above taken as a UW-Madison Special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement. UW-Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned five or more years prior to admission to a master's is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Program of study must include: At least 15 credits of EMA courses in the 500 level or above; at least 6 of these 15 credits being in 700-level or above EMA courses; combined EMA course content of the student's

undergraduate and graduate program of study must include at least 24 credits of 500-level or above mechanics coursework.

With thesis: a maximum of 12 credits of E M A 790 Master's Research and Thesis may be granted for the thesis.

Without thesis: a maximum of 12 credits of E M A 690 Master's Research may be counted toward the M.S. requirements.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

A course that is to be counted toward the M.S. degree must be passed with a grade of A, AB, or B.

## PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

All students are required to meet with his or her advisor prior to registration every semester.

## ASSESSMENTS AND EXAMINATIONS

Students who complete a thesis must defend it orally in front of a committee of three faculty.

## TIME CONSTRAINTS

Students with a B.S. degree in engineering mechanics or equivalent are typically expected to complete the master of science in three semesters. Students with non-EM backgrounds will typically be permitted four semesters to complete their master's degree if more than 27 credits are required.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program's website for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.

- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

## PROFESSIONAL CONDUCT

- recognize and apply principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors T. Allen, Blanchard (chair), Bisognano, Bonazza, Crone, Drugan, Fonck, Hegna, Henderson, Kammer, Kulcinski, Lakes, Moses, Pfothenhauer, Plesha, Smith, Sovinec, Waleffe, Wilson; Associate Professors M. Allen, Witt; Assistant Professor Schmitz; Affiliate Professors Bednarz, Bier, Deluca, Graham, Ma, Mackie, Miller, Morgan, Nellis, Porter, Robertson, Szlufarska, Thomadsen, Trujillo, Vanderby

## ENGINEERING MECHANICS, PH.D.

The master of science and doctor of philosophy degrees in engineering mechanics are offered within a graduate program covering contemporary areas in both theoretical and applied mechanics. With the guidance of a major professor, a program can be designed to meet an individual student's needs and interests.

The program is broadly structured into several main areas of instruction and research interests in mechanics of materials and astronautics: continuum mechanics, computational mechanics, dynamics and vibration, fluid mechanics, nanomechanics, solid mechanics, and biomechanics. Related fields in which minor work may be done include civil and environmental engineering, chemical and biological engineering, electrical and computer engineering, materials science, mechanical engineering, nuclear engineering and engineering physics, physics, geological engineering and geology, mathematics, statistics, and computer science.

Current faculty research interests include adhesive-bonded joints; composites; failure criteria; analytical and computational solid mechanics; analytical and computational dynamics; multibody dynamics; analytical and computational active and passive space-structure control systems; dynamic stability; nonlinear fracture mechanics of traditional and advanced materials; continuum mechanics; modal analysis; nanomechanics and nanotribology; fluid-structure interaction; non-Newtonian fluid flow; structural mechanics; viscoelasticity; viscoplasticity; cell mechanics; and biomechanics.

Laboratories are well equipped for experimental testing and research; these include holography, Moire, atomic force microscopy, vibration testing, and other optical methods for experimental mechanics research. The department has access to collegewide facilities. The Wisconsin Laboratory for Structures and Materials Testing has facilities for testing large structures, fatigue and vibration labs, and complements the department's laboratories. The Materials Science Center provides state-of-the-art instrumentation, support facilities, and expert technical assistance for research and education in materials. Its facilities include scanning and transmission electron microscopes, image processing and analysis systems, surface and thin film characterization facilities, and x-ray diffraction facilities.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

26 credits must be in graduate-level coursework from EMA, math, physics, computer science, or any other engineering department except EPD; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With faculty approval, students who have received their undergraduate degree from UW–Madison may apply up to 7 credits numbered 400 or above toward the minimum graduate degree credit requirement. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. No credits can be counted toward the minimum graduate residence credit requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

With faculty approval, students who have received an ABET-accredited undergraduate degree (not including UW–Madison) may be eligible to apply up to 7 credits of their undergraduate coursework toward the Minimum Graduate Degree Credit Requirement. No credits can be counted toward the Minimum Graduate Residence Credit Requirement, nor the Minimum Graduate Coursework (50%) Requirement. Coursework

earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 400 or above taken as a UW–Madison Special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement. UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

The candidate is required to complete at least two EMA courses numbered 600 or above and an additional four courses numbered 700 level or above. The 700-level courses must include at least one EMA course, while the remainder may be from EMA or the list found in the student handbook.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Technical minor: 10 credits in either a single department or multiple departments as approved by the advisor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

A course that is to be counted toward the M.S. degree must be passed with a grade of A, AB, or B.

### PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

### ADVISOR / COMMITTEE

All students are required to meet with his or her advisor prior to registration every semester.

### ASSESSMENTS AND EXAMINATIONS

All students must take the Ph.D. qualifying examination.

After acceptance of the student's doctoral plan of study, the student must take an oral preliminary examination.

Final oral examination is required at the end of the thesis work.

### TIME CONSTRAINTS

The Ph.D. qualifying examination should be first taken no later than completion of the M.S. requirements, or the beginning of the fourth semester of graduate study, whichever comes first. Students entering the program with a master's degree in EMA, EP or NE from another

institution, and taking the qualifying exam in that same major, must take the exam by the beginning of their third semester.

Students must submit the doctoral plan of study one month before the end of the semester following the one in which the qualifying exam is passed.

Candidates are expected to pass the Ph.D. preliminary examination no later than the end of the third year of graduate study, or by the end of the second regular semester following the one in which the Ph.D. qualifying examination was passed, whichever is later.

An oral examination on the findings of the Ph.D. research is required at the end of the thesis work. The candidate must apply for a warrant from the Graduate School through the student services office at least three weeks prior to the exam.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program's website for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate an ability to synthesize knowledge from a subset of the biological, physical, and social sciences to help frame problems critical to the future of their discipline.
- conduct original research.
- demonstrate an ability to create new knowledge and communicate it to their peers.

### PROFESSIONAL CONDUCT

- fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors T. Allen, Blanchard (chair), Bisognano, Bonazza, Crone, Drugan, Fonck, Hegna, Henderson, Kammer, Kulcinski, Lakes, Moses, Pfothenhauer, Plesha, Smith, Sovinec, Waleffe, Wilson; Associate Professors M. Allen, Witt; Assistant Professor Schmitz; Affiliate Professors Bednarz, Bier, Deluca, Graham, Ma, Mackie, Miller, Morgan, Nellis, Porter, Robertson, Szlufarska, Thomadsen, Trujillo, Vanderby

## NUCLEAR ENGINEERING AND ENGINEERING PHYSICS, M.S.

A broad program of instruction and research is offered in the principles of the interaction of radiation with matter and their applications, and in several areas of engineering physics. The program has strong engineering and applied science components. It emphasizes several areas of activity, including the research, design, development, and

deployment of fission reactors; fusion engineering; plasma physics; radiation damage to materials; applied superconductivity and cryogenics; and large-scale computing in engineering science.

The master's degree may be pursued as a terminal degree in the fission area and in various engineering physics areas, but it is not generally recommended as a final degree in fusion research; students interested in fusion should plan to pursue the Ph.D. degree. About 40 percent of the current graduate students hold undergraduate degrees in nuclear engineering, about 40 percent in physics, and about 20 percent in other disciplines such as mechanical engineering, electrical engineering, mathematics, and materials science.

The department is considered to have one of the top five nuclear engineering programs in the nation over the last 40 years. It incorporates several research organizations including the Wisconsin Institute of Nuclear Systems, the Pegasus Toroidal Experiment Program, the Fusion Technology Institute, and the Center for Plasma Theory and Computation.

Research may be performed in areas including next generation fission reactor engineering; fluid and heat transfer modeling for transient analysis; reactor monitoring and diagnostics; fuel cycle analysis; magnetic and inertial confinement fusion reactor engineering, including the physics of burning plasmas, plasma-wall interactions, neutron transport, tritium breeding, radiation damage, and liquid-metal heat transfer; experimental and theoretical studies of plasmas including radio frequency heating, magnetic confinement, plasma instabilities, and plasma diagnostics; industrial plasma physics, such as plasma processing and plasma source ion implantation; superconducting magnets and cryogenics; and theoretical and experimental studies of the damage to materials in fission and fusion reactors.

The department places considerable emphasis on establishing research teams or group research, as well as traditional research activity by individual faculty members and their students. The groups frequently involve faculty, scientific staff, and graduate students from several departments, adding a strong interdisciplinary flavor to the research.

Students sometimes perform thesis work at national laboratories such as Argonne National Laboratory, Idaho National Laboratory, Princeton Plasma Physics Laboratory, and Los Alamos National Laboratory.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits



## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

15 of the required 30 credits must be in graduate-level coursework from EMA, math, physics, computer science, or any other engineering department except EPD; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With faculty approval, students who have received their undergraduate degree from UW-Madison may apply up to 7 credits numbered 400 or above toward the minimum graduate degree credit requirement. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. No credits can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

With faculty approval, students who have received an ABET-accredited undergraduate degree (not including UW-Madison) may be eligible to apply up to 7 credits of their undergraduate coursework toward the Minimum Graduate Degree Credit Requirement. No credits can be counted toward the Minimum Graduate Residence Credit Requirement, nor the Minimum Graduate Coursework (50%) Requirement.

Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 400 or above taken as a UW-Madison Special student toward the minimum graduate residence credit requirement and the minimum graduate degree credit requirement. UW-Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned five or more years prior to admission to a master's is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

The following should be taken prior to or during the course of study: N E 427 Nuclear Instrumentation Laboratory; N E 428 Nuclear Reactor Laboratory or N E 526 Laboratory Course in Plasmas; N E 408 Ionizing Radiation or N E/MED PHYS 569 Health Physics and Biological Effects.

With thesis: maximum of 12 credits for thesis; remaining credits must be appropriate technical areas. W/out thesis: at least 15 credits at the 400 level or above; remaining 15 credits must be in appropriate technical

areas. At least 12 credits must be at the 500 level or above; up to 3 credits can be seminar credits.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

Courses in which grades of BC or below are received cannot be counted except as follows:

Credits of C must be balanced by twice as many credits A or by four times as many credits of AB; Credits of BC must be balanced by an equal number of credits of A or by twice as many credits of AB.

## PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

All students are required to meet with his or her advisor prior to registration every semester.

## ASSESSMENT AND EXAMINATIONS

Students who do not complete a thesis must pass an oral exam. Students who do complete a thesis must defend it orally in front of a committee of three faculty.

## TIME CONSTRAINTS

Candidates must pass an oral examination on completed coursework or on the thesis if the thesis option is chosen. Students have two attempts to pass this examination with at least one month elapsing between attempts. Candidates who have passed the Ph.D. qualifying examination will be excused from the oral master's examination.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions. (<https://grad.wisc.edu/admissions/requirements>) Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website for details.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

## PROFESSIONAL CONDUCT

- recognize and apply principles of ethical and professional conduct.

### PEOPLE

**Faculty:** Professors T. Allen, Blanchard (chair), Bisognano, Bonazza, Crone, Drugan, Fonck, Hegna, Henderson, Kammer, Kulcinski, Lakes, Moses, Pfothner, Plesha, Smith, Sovinec, Waleffe, Wilson; Associate Professors M. Allen, Witt; Assistant Professor Schmitz; Affiliate Professors Bednarz, Bier, Deluca, Graham, Ma, Mackie, Miller, Morgan, Nellis, Porter, Robertson, Szlufarska, Thomadsen, Trujillo, Vanderby

## NUCLEAR ENGINEERING AND ENGINEERING PHYSICS, PH.D.

A broad program of instruction and research is offered in the principles of the interaction of radiation with matter and their applications, and in several areas of engineering physics. The program has strong engineering and applied science components. It emphasizes several areas of activity, including the research, design, development, and deployment of fission reactors; fusion engineering; plasma physics; radiation damage to materials; applied superconductivity and cryogenics; and large-scale computing in engineering science.

The master's degree may be pursued as a terminal degree in the fission area and in various engineering physics areas, but it is not generally recommended as a final degree in fusion research; students interested in fusion should plan to pursue the Ph.D. degree. About 40 percent of the current graduate students hold undergraduate degrees in nuclear engineering, about 40 percent in physics, and about 20 percent in other disciplines such as mechanical engineering, electrical engineering, mathematics, and materials science.

The department is considered to have one of the top five nuclear engineering programs in the nation over the last 40 years. It incorporates several research organizations including the Wisconsin Institute of Nuclear Systems, the Pegasus Toroidal Experiment Program, the Fusion Technology Institute, and the Center for Plasma Theory and Computation.

Research may be performed in areas including next generation fission reactor engineering; fluid and heat transfer modeling for transient analysis; reactor monitoring and diagnostics; fuel cycle analysis; magnetic and inertial confinement fusion reactor engineering, including the physics of burning plasmas, plasma-wall interactions, neutron transport, tritium breeding, radiation damage, and liquid-metal heat transfer; experimental and theoretical studies of plasmas including radio frequency heating, magnetic confinement, plasma instabilities, and plasma diagnostics; industrial plasma physics, such as plasma processing and plasma source ion implantation; superconducting magnets and cryogenics; and theoretical and experimental studies of the damage to materials in fission and fusion reactors.

The department places considerable emphasis on establishing research teams or group research, as well as traditional research activity by individual faculty members and their students. The groups frequently involve faculty, scientific staff, and graduate students from several departments, adding a strong interdisciplinary flavor to the research.

Students sometimes perform thesis work at national laboratories such as Argonne National Laboratory, Idaho National Laboratory, Princeton Plasma Physics Laboratory, and Los Alamos National Laboratory.

### FUNDING

Prospective students should see the program website for funding information.

### REQUIREMENTS

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

26 of the required 30 credits must be in graduate-level coursework from EMA, math, physics, computer science, or any other engineering department except EPD; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With faculty approval, students who have received their undergraduate degree from UW-Madison may apply up to 7 credits numbered 400 or above toward the minimum graduate degree credit requirement. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. No credits can be counted toward the minimum graduate residence credit requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

With faculty approval, students who have received an ABET-accredited undergraduate degree (not including UW-Madison) may be eligible to apply up to 7 credits of their undergraduate coursework toward

the Minimum Graduate Degree Credit Requirement. No credits can be counted toward the Minimum Graduate Residence Credit Requirement, nor the Minimum Graduate Coursework (50%) Requirement.

Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 400 or above taken as a UW-Madison special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement. UW-Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

The candidate is required to complete one course in each of the following areas: must be taken as a graduate student and be at the 400 level or above: fission reactors; plasma physics and fusion; materials; engineering mathematics and computation.

Must take three 700-level courses; must satisfy Ph.D. technical minor requirement; must satisfy Ph.D. non-technical minor requirement.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Technical minor: 10 credits in either a single department or multiple departments as approved by the advisor.

Non-technical minor: 6 credits following one of the four options described in the student handbook.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

Courses in which grades of BC or below are received cannot be counted except as follows:

Credits of C must be balanced by twice as many credits A or by four times as many credits of AB; Credits of BC must be balanced by an equal number of credits of A or by twice as many credits of AB.

## PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

## ADVISOR

All students are required to meet with his or her advisor prior to registration every semester.

## ASSESSMENT AND EXAMINATIONS

Ph.D. qualifying examination is required of all students.

After acceptance of the student's doctoral plan of study, the student must take an oral preliminary examination.

Final oral examination is required at the end of the thesis work.

## TIME CONSTRAINTS

The Ph.D. qualifying examination should be first taken no later than completion of the M.S. requirements, or the beginning of the fourth semester of graduate study, whichever comes first. Students entering the program with a master's degree in EMA, EP or NE from another institution, and taking the qualifying exam in that same major, must take the exam by the beginning of their third semester.

Students must submit the doctoral plan of study one month before the end of the semester following the one in which the qualifying exam is passed.

Candidates are expected to pass the Ph.D. preliminary examination no later than the end of the third year of graduate study, or by the end of the second regular semester following the one in which the Ph.D. qualifying examination was passed, whichever is later.

An oral examination on the findings of the Ph.D. research is required at the end of the thesis work. The candidate must apply for a warrant from the Graduate School through the student services office at least three weeks before the exam.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions. (<https://grad.wisc.edu/admissions/requirements>) Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website (<https://www.engr.wisc.edu/department/engineering-physics/academics/ms-nuclear-engineering>) for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate an ability to synthesize knowledge from a subset of the biological, physical, and social sciences to help frame problems critical to the future of their discipline.
- conduct original research.
- demonstrate an ability to create new knowledge and communicate it to their peers.

### PROFESSIONAL CONDUCT

- fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors T. Allen, Blanchard (chair), Bisognano, Bonazza, Crone, Drugan, Fonck, Hegna, Henderson, Kammer, Kulcinski, Lakes,

Moses, Pfothauer, Plesha, Smith, Sovinec, Waleffe, Wilson; Associate Professors M. Allen, Witt; Assistant Professor Schmitz; Affiliate Professors Bednarz, Bier, Deluca, Graham, Ma, Mackie, Miller, Morgan, Nellis, Porter, Robertson, Szlufarska, Thomadsen, Trujillo, Vanderby

## NUCLEAR ENGINEERING, DOCTORAL MINOR

### REQUIREMENTS

1. A minimum of 4 N E courses, 400 level or above, are required for the minor. These are decided in consultation with the student's advisor.
  - a. All courses used for the minor must be 400 level or above and taken after the bachelor's degree.
  - b. Ordinarily only one course (maximum of 3 credits) of independent study is allowed (N E 699 Advanced Independent Study, N E 999 Advanced Independent Study).
  - c. Research and thesis courses may not be used for this minor.
  - d. No more than 5 credits completed five or more years prior to admission to the Ph.D. major may be used.
  - e. Courses taken 10 or more years ago may not be used.
  - f. Courses taken pass/fail or for audit may not be used.
  - g. Courses with grades of S given in courses graded on a credit/no credit basis are acceptable.
2. A GPA of 3.0 must be maintained for the minor.
3. A maximum of 6 credits may be transferred from other institutions to satisfy the minor requirements.
4. The minor program must be approved by the minor professor, appointed by the department chair.
5. A student who has earned an M.S. degree in nuclear engineering and engineering physics will be considered to have fulfilled the minor requirements.

### PEOPLE

**Faculty:** Professors T. Allen, Blanchard (chair), Bisognano, Bonazza, Crone, Drugan, Fonck, Hegna, Henderson, Kammer, Kulcinski, Lakes, Moses, Pfothauer, Plesha, Smith, Sovinec, Waleffe, Wilson; Associate Professors M. Allen, Witt; Assistant Professor Schmitz; Affiliate Professors Bednarz, Bier, Deluca, Graham, Ma, Mackie, Miller, Morgan, Nellis, Porter, Robertson, Szlufarska, Thomadsen, Trujillo, Vanderby

## ENGINEERING—COLLEGE-WIDE

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Engineering, M.Eng. (p. 269)
- Environmental Chemistry and Technology, Doctoral Minor (p. 273)
- Environmental Chemistry and Technology, M.S. (p. 273)
- Environmental Chemistry and Technology, Ph.D. (p. 275)
- Manufacturing Systems Engineering, Doctoral Minor (p. 276)
- Manufacturing Systems Engineering, M.S. (p. 276)
- Materials Science, M.S. (p. 279)
- Materials Science, Ph.D. (p. 282)

## ENGINEERING, M.ENG.

### MASTER OF ENGINEERING—NAMED OPTION: ENGINEERING DATA ANALYTICS

The named option of applied computing and engineering data analytics in the master of engineering degree is an online master's degree program that teaches students how to use hardware and software to analyze, process, and build conclusions using "big data" in the design, testing, and operations phases of numerous computationally intensive engineering processes.

The degree offers students a chance to become proficient in:

- High performance computing
- Modeling, simulation, and visualization
- Emerging hardware and software
- Programming languages
- Problem-solving methodologies
- Pattern recognition
- Optimum design

Students will also have the opportunity to sharpen their digital and technical communications skills, including project management, and how to lead technical teams.

Candidates must complete 30 credits. The degree may be earned by engineers who have a B.S. degree in engineering or computer science from an ABET-approved program, a GPA of 3.0 (on a scale where 4.0 = A), and three letters of recommendation. Interested applicants with B.S. degrees in related fields should contact the graduate programs coordinator for more specific admission information at [gradadmissions@epd.wisc.edu](mailto:gradadmissions@epd.wisc.edu). For more details, see the program website (<https://epd.wisc.edu/online-degree/engineering-data-analytics>).

### MASTER OF ENGINEERING—NAMED OPTION: ENGINE SYSTEMS

The named option engine systems in the master of engineering degree is the only online engineering master's degree focused on internal combustion engine development. This interactive, web-based program provides internal combustion engine engineers with a broad base of skills in:

- Dynamics and design
- Material science and fluid mechanics
- Electronics and control
- Global teamwork

The program is tailored for working engineers, offering:

- An online platform accessible to you from anywhere in the world
- Flexible learning times
- Courses and projects that apply immediately to real-world work
- A supportive structure that keeps you on track

A small cohort of students is selected each year; admission requirements for engineers interested in applying are:

- B.S. degree in engineering or similar degree from an ABET-accredited program
- A minimum undergraduate grade point average (GPA) of 3.00 on the equivalent of the last 60 semester hours (approximately two years of work) or a master's degree with a minimum cumulative GPA of 3.00

This 30-credit program spans seven semesters, or three-and-a-half years. Students are required to attend a one-week residency on the UW-Madison campus each year of the program. For details, please contact Dr. Sandra Anderson, program director, at 608-890-2026; [anderson@epd.engr.wisc.edu](mailto:anderson@epd.engr.wisc.edu); see also the program website (<https://epd.wisc.edu/online-degree/master-of-engineering-engine-systems>).

### MASTER OF ENGINEERING—NAMED OPTION: ENGINEERING MANAGEMENT

The named option engineering management in the master of engineering degree is a two-year online engineering master's degree program designed to give experienced engineers from all disciplines the tools and capabilities to be more effective engineering leaders. Students gain technical proficiency in:

- Project management
- Business operations
- Communications
- Quality management
- Applied statistics
- Computer-based problem solving
- International engineering practice

The program is tailored for working engineers, offering:

- An online platform accessible to you from anywhere in the world
- Flexible learning times
- Courses and projects that apply immediately to real-world work
- A supportive structure that keeps you on track

A cohort of 30 students begins in June each year. Candidates must complete 30 credits in required courses and specific electives. The degree may be earned by engineers who have:

- A B.S. degree in engineering from an ABET-approved program
- A minimum undergraduate grade-point average (GPA) of 3.00 on the equivalent of the last 60 semester hours (approximately two years of work) or a master's degree with a minimum cumulative GPA of 3.00
- Four years of post-baccalaureate work experience in engineering

Interested applicants with B.S. degrees in related fields should contact the graduate programs coordinator for more specific admission information at [gradadmissions@epd.wisc.edu](mailto:gradadmissions@epd.wisc.edu). For further details about the program, contact Wayne Pferdehirt, program director, at 608-265-2361, [wppferde@wisc.edu](mailto:wppferde@wisc.edu), or see the program website (<https://epd.wisc.edu/online-degree/master-of-engineering-management>).

**Note:** The named option in engineering management in the master of engineering degree program was formerly named professional practice (MEPP). The program was renamed in summer 2014.

## MASTER OF ENGINEERING—NAMED OPTION: MANUFACTURING SYSTEMS ENGINEERING

The named option manufacturing systems engineering in the master of engineering degree is an online master's degree program designed to prepare students for the application of advanced technologies and processes in the manufacturing industry. Students will gain cross-functional expertise to drive creative product and process development, efficient production, and timely delivery to the customer through a systematic approach to finance, methods, materials, and technology.

The degree offers students a chance to:

- Analyze, compare, and contrast technical and business systems to optimize their organizations
- Solve problems and drive innovation in the manufacturing systems industry
- Apply their new skills in a global context

Candidates must complete 30 core credits. The degree may be earned by engineers who have a B.S. degree in engineering from an ABET-approved program, a GPA of 3.0 (on a scale where 4.0 = A), and three letters of recommendation. Interested applicants with B.S. degrees in related fields should contact the graduate programs coordinator for more specific admission information at [gradadmissions@epd.wisc.edu](mailto:gradadmissions@epd.wisc.edu). For more details, see the program website (<https://epd.wisc.edu/online-degree/manufacturing-systems-engineering>).

## MASTER OF ENGINEERING—NAMED OPTION: SUSTAINABLE SYSTEMS ENGINEERING

The named option sustainable systems engineering in the master of engineering degree is an online master's degree program designed to prepare students to analyze, design and operate complex systems with low negative impact on the quality of water, land, air, energy, economics, and society. Students will gain an understanding of sustainable principles, applied engineering methods, and professional skills.

The program is tailored for working engineers, offering:

- Knowledge and skills that can immediately be applied to work situations
- Project-based learning with experienced professionals
- Award-winning distance-learning design

Candidates must complete 30 credits, consisting of required courses, approved electives, and a capstone project. The degree may be earned by engineers who have a B.S. degree in engineering from an ABET-approved program, a GPA of 3.0 (on a scale where 4.0 = A), and three letters of recommendation. Interested applicants with B.S. degrees in related fields should contact the graduate programs coordinator for more specific admission information at [gradadmissions@epd.wisc.edu](mailto:gradadmissions@epd.wisc.edu). For more details, see the program website (<https://epd.wisc.edu/online-degree/sustainable-systems-engineering>).

## MASTER OF ENGINEERING—NAMED OPTION: TECHNICAL JAPANESE

The named option technical Japanese in the master of engineering degree provides the necessary skills and knowledge to interact effectively with Japanese counterparts in the technical or business arena. This degree program begins in the fall of each year. To obtain the degree, candidates must complete at least 30 credits of approved course work (beyond a B.S. degree) in technical Japanese, Japanese language, and technology development in Japan.

Students with a bachelor's degree other than a B.S. degree must provide transcript evidence of the completion of a minimum of 16 semester credits of undergraduate courses in science or engineering in order to be admitted to this degree program. All applicants must have at least a 3.0 GPA from their undergraduate institution (where 4.0 = A).

All courses are offered regularly to students on the UW–Madison campus, and are also offered at a distance. Students must complete E P D/E ASIAN 374 Intermediate Technical Japanese I/E P D/E ASIAN 375 Intermediate Technical Japanese II. At least 18 credits must come from approved courses numbered 600 or higher. No more than 6 credits of independent study (E P D 699 Independent Study) are allowed. Most students enroll in one course per semester over a period of four years; however, it is possible for highly motivated students to complete the degree in one academic year. For questions concerning the curriculum or the application process, contact Professor James L. Davis, program director, at 608-262-4810, [jdavis@enr.wisc.edu](mailto:jdavis@enr.wisc.edu).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### NAMED OPTIONS

M.Eng., with available named options in Applied Computing and Engineering Data Analytics, Engine Systems, Engineering Management, Manufacturing Systems Engineering, Sustainable Systems Engineering, and Technical Japanese

**MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT**

30 credits

**MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT**

16 credits

**MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT**

M.Eng.–named option in Applied Computing and Engineering Data Analytics: Half of degree coursework (at least 15 credits out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

M.Eng.–named option in Engine Systems: All courses in this fixed curriculum program are graduate-level courses, identified with the Graduate Level Coursework attribute in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>), and are offered exclusively to Graduate students in the M.Eng. degree program.

M.Eng.–named option in Engineering Management: All courses in this fixed curriculum program are graduate-level courses, identified with the Graduate Level Coursework attribute in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>), and are offered exclusively to Graduate students in the M.Eng. degree program.

M.Eng.–named option in Manufacturing Systems Engineering: Half of degree coursework (at least 15 credits out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

M.Eng.–named option in Sustainable Systems Engineering: Half of degree coursework (at least 15 credits out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

M.Eng.–named option in Technical Japanese: More than half of degree coursework (at least 18 credits out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

**PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

With program approval, students are allowed to count graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

Up to 7 credits numbered 300 or above can be counted toward the minimum graduate degree credit requirement. Up to 7 credits of courses numbered 600 or above can be counted toward the minimum graduate coursework (50%) requirement. No credits can be counted toward the

minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With program approval, students are allowed to count up to 9 credits of coursework numbered 300 or above taken as a UW–Madison Special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement, and up to 15 credits of courses numbered 700 or above taken as a UW–Madison Special student toward the minimum graduate coursework (50%) requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

**CREDITS PER TERM ALLOWED**

15 credits

**PROGRAM-SPECIFIC COURSES REQUIRED****M.Eng.–Named Option in Applied Computing and Engineering Data Analytics**

Contact program for more information.

Code	Title	Credits
I SY E 412	Fundamentals of Industrial Data Analytics	3
M E/COMP SCI/ E C E/E M A/E P 759	High Performance Computing for Applications in Engineering	3
L I S 751	Database Design for Libraries and Information Agencies	3
E P D 416	Engineering Applications of Statistics	3

**M.Eng.–Named Option in Engine Systems**

Code	Title	Credits
E P D 641	Essential Skills for Engineering Productivity	2
E P D 642	Thermal Systems Engineering	2
E P D 626	Engine Project Management	3
E P D 622	Engine Design I	2
E P D 623	Engine Design II	4
E P D 624	Engine Performance and Combustion	4
E P D 625	Engine Fluid Dynamics	3
E P D 643	Analysis of Trends in Engines - Legislative Drivers and Alternative Fuels	1
E P D 644	Analysis of Trends in Engines - Powertrain Technologies and Manufacturing	1
E P D 627	Perspectives on Engine Modeling	2
E P D 629	Engine Systems and Controls	4

**M.Eng.–Named Option in Engineering Management**

Code	Title	Credits
E P D 378	Network Skills for Remote Learners	1
E P D 611	Engineering Economics and Management	3

EP D 612	Technical Project Management	3
EP D 617	Communicating Technical Information	3
EP D 470	Engineering Problem Solving with Computers	3
EP D 615	Independent Reading and Research in Applied Engineering	2
EP D 416	Engineering Applications of Statistics	3
EP D 613	International Engineering Strategies and Operations	3
EP D 618	Applied Leadership and Management of Engineering Organizations	3
EP D 518	Quality Engineering and Quality Management	3

### M. Eng.–Named Option in Manufacturing Systems Engineering

First term fall 2016—contact the program for more information.

### M.Eng.–Named Option in Sustainable Systems Engineering

Code	Title	Credits
EP D 660	Core Competencies of Sustainability	3
EP D 641	Essential Skills for Engineering Productivity	2
EP D 661	Industrial Ecology: Sustainability Tools in Context	3
OTM 770	Sustainable Approaches to System Improvement	4
EP D 669	Sustainable Systems Engineering Capstone	3

### M.Eng.–Named Option in Technical Japanese

Code	Title	Credits
EP D/E ASIAN 330	Basic Technical Japanese I <sup>1</sup>	3
EP D/E ASIAN 332	Basic Technical Japanese II <sup>1</sup>	3
EP D/E ASIAN 374	Intermediate Technical Japanese I	3
EP D/E ASIAN 375	Intermediate Technical Japanese II	3
EP D/E ASIAN 601	Japanese for Business and Industry	3-4
EP D/E ASIAN 602	Japanese for Politics and Government	3-4
EP D 603	Advanced Technical Japanese Seminar	3-4
EP D 604	Research in Japanese Technical Literature	2-6

<sup>1</sup> Two courses may be waived with previous experience as determined by the program director.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

Must retake any courses for which a grade below C is recorded.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR / COMMITTEE

All students have both a plan advisor and academic advisor (typically the program director or academic director for each program); programs without a fixed curriculum are required to meet with their advisor to outline an approved plan of study by the end of their first academic term.

### ASSESSMENTS AND EXAMINATIONS

No formal examination required.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program's website for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- acquire a strong background in engineering principles and a thorough knowledge of the latest.
- acquire practical engineering experience that will be immediately applicable in the workplace.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.
- acquire knowledge and practice of career-enhancing competencies that enhance professional opportunities and personal success.

### PROFESSIONAL CONDUCT

- recognize and apply principles of ethical and professional conduct.



## ENVIRONMENTAL CHEMISTRY AND TECHNOLOGY, DOCTORAL MINOR

Any student enrolled in a University of Wisconsin–Madison Ph.D. program can pursue a doctoral minor in environmental chemistry and technology (EC&T). The strength of the EC&T program lies in its interdisciplinary approach bringing state-of-the-art scientific and engineering principles to the field of environmental chemistry. This enables EC&T to educate and train graduate students for varied careers as well as to advance knowledge and techniques for both scientific research and applied problem solving.

### REQUIREMENTS

A minimum of 9 course credits associated with the EC&T Ph.D. major's core classwork (CIV ENGR 703 Environmental Geochemistry or GEOSCI 875 Advanced Topics in Geology, CIV ENGR 502 Environmental Organic Chemistry or CIV ENGR 704 Environmental Chemical Kinetics, CIV ENGR/ATM OCN 701 The Chemistry of Air Pollution) and/or advanced electives (numbered 500 or higher) associated with the program. One semester of CIV ENGR 909 Graduate Seminar - Environmental Chemistry & Technology, Graduate Research Seminar must be included. Breadth of courses should complement the Ph.D. major and the student's academic background. Students are expected to achieve a B or better in all courses for the minor. EC&T minor courses and those required by the Ph.D. major cannot overlap or double-count.

### ADMISSIONS

Contact James P. Hurley, Chair, Environmental Chemistry and Technology Program, [jphurley@wisc.edu](mailto:jphurley@wisc.edu).

### PEOPLE

**Faculty:** Anderson (Civil and Environmental Engineering), Bleam (Soil Science), Ginder-Vogel (Civil and Environmental Engineering), Harrington (Civil and Environmental Engineering), Helmke (Soil Science), Hurley (chair) (Civil and Environmental Engineering), Karthikeyan (Biological Systems Engineering), McMahon (Civil and Environmental Engineering), Noguera (Civil and Environmental Engineering), Pedersen (Molecular and Environmental Toxicology/Soil Science), Remucal (Civil and Environmental Engineering), Roden (Geoscience), Root (Chemical and Biological Engineering), Schauer (Civil and Environmental Engineering), Thompson (Biological Systems Engineering)

## ENVIRONMENTAL CHEMISTRY AND TECHNOLOGY, M.S.

The program has been organized to offer advanced instruction and research training in environmental chemistry and environmental technology leading to the master of science and the doctor of philosophy. A doctoral minor in environmental chemistry and technology is also offered. The program trains candidates for careers in teaching, research, resource management, environmental consulting, and private sector/ industrial positions. Areas of work include the development of advanced technologies and materials for air and water purification and for the

saving and storage of energies, alternative energy technologies, water and air pollution control, soil and sediment remediation, environmental technology, chemical limnology, and groundwater chemistry.

The M.S. and Ph.D. degrees are designed for students who have a strong background in chemistry and who desire graduate training in applying chemistry to environmental systems. Individual programs are tailored to meet the candidate's interests through selection of a specialization and elective courses. Areas of specialization include aquatic chemistry, air pollution chemistry, terrestrial chemistry, and chemical- and biotechnology development.

The environmental chemistry and technology program faculty is composed of an interdepartmental committee. Several committee members who have appointments in the Department of Civil and Environmental Engineering are located in the Water Science and Engineering Laboratory. Other members are located in their respective departments.

The environmental chemistry and technology area occupies over 10,000 square feet of office and laboratory space in the Water Science and Engineering Laboratory. Facilities include offices, conference room, classrooms, computer facilities, and over 8,000 square feet devoted to research. The research areas, including trace element and mercury clean laboratories, are designed for research in aquatic chemistry, air pollution chemistry, and environmental technology. Shop facilities (electronics/mechanical) allow fabrication of specialized equipment tailored to the particular field and laboratory research needs. Other specialized facilities include areas for investigations of air pollution chemistry, ceramic membrane technologies, hazardous material remediation, and development of energy storage devices.

In addition to the Water Science and Engineering Laboratory, students also have access to numerous facilities on the UW–Madison campus, including laboratories in the Departments of Soil Science, Chemical and Biological Engineering, Materials Science and Engineering, Chemistry, Geoscience, Civil and Environmental Engineering, the Center for Limnology, and the State Laboratory of Hygiene.

### FUNDING

Students accepted into the program can expect to be fully funded through fellowships or assistantships on research projects. Admission decisions are based on the student's qualifications and research interests, the availability of funding, and the focus of funded research projects. Funding includes a waiver of tuition (excluding segregated fees), health benefits (including family coverage), and a yearly stipend.

### REQUIREMENTS

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available thesis, and report tracks

**MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT**

30 credits

**MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT**

16 credits

**MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT**

Half of degree coursework (15 out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

**PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

With program approval, students may be allowed to count credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

With program approval, 7 credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With program approval, 15 credits taken as a UW–Madison Special student are allowed toward minimum coursework requirements.

**CREDITS PER TERM ALLOWED**

15 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

Students are required to develop a plan of courses with their advisor.

**OVERALL GRADUATE GPA REQUIREMENT**

3.00 GPA required.

**OTHER GRADE REQUIREMENTS**

Students must earn a B or above in all courses counting toward degree requirements.

**PROBATION POLICY**

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

**ADVISOR / COMMITTEE**

All incoming students are assigned an advisor. Students are expected to meet with their advisor on a regular basis.

**ASSESSMENTS AND EXAMINATIONS**

The thesis track requires a formal thesis; the report track requires a comprehensive report.

**TIME CONSTRAINTS**

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

**LANGUAGE REQUIREMENTS**

No language requirements.

**ADMISSIONS**

Students seeking admission should have a background in the fundamental areas of general, organic, physical, and analytical chemistry. In addition, students should have some background in applied sciences which can be fulfilled with a minimum of 6 credits in natural sciences such as botany, zoology, bacteriology, earth science, material science, biochemistry, or engineering. Students who have not met these requirements must do so prior to the completion of the master's degree. Students must submit Graduate Record Exam (GRE) scores.

**LEARNING OUTCOMES****KNOWLEDGE AND SKILLS**

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

**PROFESSIONAL CONDUCT**

- recognize and apply principles of ethical and professional conduct.

**PEOPLE**

**Faculty:** Anderson (Civil and Environmental Engineering), Bleam (Soil Science), Ginder-Vogel (Civil and Environmental Engineering), Harrington (Civil and Environmental Engineering), Helmke (Soil Science), Hurley (chair) (Civil and Environmental Engineering), Karthikeyan (Biological Systems Engineering), McMahon (Civil and Environmental Engineering), Noguera (Civil and Environmental Engineering), Pedersen (Molecular and Environmental Toxicology/Soil Science), Remucal (Civil and Environmental Engineering), Roden (Geoscience), Root (Chemical and Biological Engineering), Schauer (Civil and Environmental Engineering), Thompson (Biological Systems Engineering)

## ENVIRONMENTAL CHEMISTRY AND TECHNOLOGY, PH.D.

The program has been organized to offer advanced instruction and research training in environmental chemistry and environmental technology leading to the master of science and the doctor of philosophy. A doctoral minor in environmental chemistry and technology is also offered. The program trains candidates for careers in teaching, research, resource management, environmental consulting, and private sector/ industrial positions. Areas of work include the development of advanced technologies and materials for air and water purification and for the saving and storage of energies, alternative energy technologies, water and air pollution control, soil and sediment remediation, environmental technology, chemical limnology, and groundwater chemistry.

The M.S. and Ph.D. degrees are designed for students who have a strong background in chemistry and who desire graduate training in applying chemistry to environmental systems. Individual programs are tailored to meet the candidate's interests through selection of a specialization and elective courses. Areas of specialization include aquatic chemistry, air pollution chemistry, terrestrial chemistry, and chemical- and biotechnology development.

The environmental chemistry and technology program faculty is composed of an interdepartmental committee. Several committee members who have appointments in the Department of Civil and Environmental Engineering are located in the Water Science and Engineering Laboratory. Other members are located in their respective departments.

The environmental chemistry and technology area occupies over 10,000 square feet of office and laboratory space in the Water Science and Engineering Laboratory. Facilities include offices, conference room, classrooms, computer facilities, and over 8,000 square feet devoted to research. The research areas, including trace element and mercury clean laboratories, are designed for research in aquatic chemistry, air pollution chemistry, and environmental technology. Shop facilities (electronics/mechanical) allow fabrication of specialized equipment tailored to the particular field and laboratory research needs. Other specialized facilities include areas for investigations of air pollution chemistry, ceramic membrane technologies, hazardous material remediation, and development of energy storage devices.

In addition to the Water Science and Engineering Laboratory, students also have access to numerous facilities on the UW–Madison campus, including laboratories in the Departments of Soil Science, Chemical and Biological Engineering, Materials Science and Engineering, Chemistry, Geoscience, Civil and Environmental Engineering, the Center for Limnology, and the State Laboratory of Hygiene.

## FUNDING

Students accepted into the program can expect to be fully funded through fellowships or assistantships on research projects. Admission decisions are based on the student's qualifications and research interests, the availability of funding, and the focus of funded research projects. Funding includes a waiver of tuition (excluding segregated fees), health benefits (including family coverage), and a yearly stipend.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students may be to count credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, 7 credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, 15 credits taken as a UW–Madison Special student are allowed toward minimum coursework requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Students are required to develop a plan of courses with their advisor.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all courses counting toward degree requirements.

## PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of enrollment the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

All incoming students are assigned an advisor. Students are expected to meet with their advisor on a regular basis.

## ASSESSMENTS AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary exam by the end of their fifth semester of study in the Ph.D. program. A final oral exam of the doctoral dissertation is required. Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Students seeking admission should have a background in the fundamental areas of general, organic, physical, and analytical chemistry. In addition, students should have some background in applied sciences which can be fulfilled with a minimum of 6 credits in natural sciences such as botany, zoology, bacteriology, earth science, material science, biochemistry, or engineering. Students who have not met these requirements must do so prior to the completion of the master's degree. Students must submit Graduate Record Exam (GRE) scores.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate an ability to synthesize knowledge from a subset of the biological, physical, and social sciences to help frame problems critical to the future of their discipline.
- conduct original research.
- demonstrate an ability to create new knowledge and communicate it to their peers.

### PROFESSIONAL CONDUCT

- fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Anderson (Civil and Environmental Engineering), Blead (Soil Science), Ginder-Vogel (Civil and Environmental Engineering), Harrington (Civil and Environmental Engineering), Helmke (Soil Science), Hurley (chair) (Civil and Environmental Engineering), Karthikeyan (Biological Systems Engineering), McMahon (Civil and Environmental Engineering), Noguera (Civil and Environmental Engineering), Pedersen (Molecular and Environmental Toxicology/Soil Science), Remucal (Civil and Environmental Engineering), Roden (Geoscience), Root (Chemical and Biological Engineering), Schauer (Civil and Environmental Engineering), Thompson (Biological Systems Engineering)

## MANUFACTURING SYSTEMS ENGINEERING, DOCTORAL MINOR

## MANUFACTURING SYSTEMS ENGINEERING, M.S.

The master of science in manufacturing systems engineering (MSE) is an on-campus, multidisciplinary degree, drawing courses and faculty from engineering, business, computer sciences, and statistics. As the first program of its kind in the United States, and among the first in the world, MSE has long been recognized as a leading provider of resourceful engineers for global and dynamic manufacturing firms. Hands-on projects, along with classes taught by internationally recognized experts and state-of-the-art technology, provide an ideal foundation for anyone entering today's advanced manufacturing environment.

MSE graduates leave the program skilled beyond narrow specialties and equipped to lead technical teams. Students are exposed to practical problems and cutting-edge concepts, resulting in engineers who combine management skills with advanced technical abilities. Courses cover a broad range of manufacturing issues, while reinforcing a systems approach. The variety of subjects allows students to tailor their studies to individual goals or interests. More than 400 MSE alumni currently work in industry.

The student body of the MSE program is predominantly composed of students returning from industry or working for their degrees while employed. The program also has a substantial number of international students. Prospective students find the mid-sized program an ideal learning environment.

Specifically, the program addresses solutions to problems in the design, development, implementation, operation, evaluation, and management of modern manufacturing systems. An named option in the MSE M.S. degree titled "engineering management specialization" is also offered, ideal for engineering students with a special interest in management issues pertaining to manufacturing. For students seeking advanced training in management, the School of Business offers an MBA in operations and technology management. A maximum of 6 advanced credits of MSE course work can be used to satisfy some of the MBA degree requirements.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.S., with available course only, industry thesis, and research thesis tracks, M.S. with named option Engineering Management Specialization

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework in the College of Engineering, the School of Business, the Department of Statistics, the Department of Biological Systems Engineering, or the Department of Computer Sciences; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 12 credits of graduate coursework from other institutions toward the minimum graduate degree requirement and toward the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, up to 7 credits from the UW-Madison Undergraduate career numbered 400 or above may be counted toward the minimum graduate degree credit requirement. No prior coursework from the UW-Madison undergraduate career may be counted toward the minimum graduate coursework (50%) requirement or the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 400 or above taken as a UW-Madison Special student toward the minimum graduate residence credit requirement and the minimum graduate degree credit requirement; coursework numbered 700 or above may satisfy the minimum graduate coursework (50%)

requirement. Coursework earned five or more years prior to admission is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### OVERALL GRADUATE GPA REQUIREMENT

3.00

#### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

#### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

#### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

The director of the Manufacturing Systems Engineering Program is assigned as the advisor to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

#### ASSESSMENT AND EXAMINATIONS

Requirements determined by the program.

#### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence.

#### LANGUAGE REQUIREMENTS

No language requirements.

#### COURSES

The on-campus manufacturing systems engineering M.S. program has three tracks: course only, industrial thesis, and research thesis. Students may also pursue an named option in engineering management specialization. Students must take four courses from the core course areas with at least one course from each of the core course areas. All students are required to take the capstone course I SY E/M E 641 Design and Analysis of Manufacturing Systems. The remaining course requirements vary depending on the program track that is chosen and are described in the table below.

Code	Title	Credits
<b>Program Tracks</b>		
Select one of the following tracks:		30
Course-Only Track:		

Select four courses from the Core Course Areas listed below	
I SY E/M E 641	Design and Analysis of Manufacturing Systems (offered in spring semester)
Select 12 credits of elective courses	
Industry Thesis - Not required for courses only track	
Industry Track:	
Select four courses from the Core Course Areas listed below	
I SY E/M E 641	Design and Analysis of Manufacturing Systems (spring semester)
Industrial Thesis	
Select 12 credits of elective courses	
Research Thesis Track:	
Select four courses from the Core Course Areas listed below	
I SY E/M E 641	Design and Analysis of Manufacturing Systems (spring semester)
Research Thesis	
Select three hours of elective courses	

## CORE COURSE AREAS

Code	Title	Credits
<b>Fundamentals of Process and Technology</b>		
CBE 450	Process Design	3
CBE 470	Process Dynamics and Control	3
CBE 540	Polymer Science and Technology	3
CBE 541	Plastics and High Polymer Laboratory	1-3
CBE 770	Advanced Process Dynamics and Control <sup>1</sup>	3
E C E 412	Power Electronic Circuits	3
E C E 453	Embedded Microprocessor System Design	4
E C E/B M E 462	Medical Instrumentation	3
E C E/N E 528	Plasma Processing and Technology	3
E C E 549	Integrated Circuit Fabrication Laboratory	3
I SY E 415	Introduction to Manufacturing Systems, Design and Analysis	3
I SY E 605	Computer Integrated Manufacturing	3
M E 417	Introduction to Polymer Processing	3
M E 418	Engineering Design with Polymers	3
M E 419	Fundamentals of Injection Molding	3
M E 429	Metal Cutting	3
M E 437	Advanced Materials Selection	3
M E/E C E 439	Introduction to Robotics	3
M E 446	Automatic Controls	3
M E 447	Computer Control of Machines and Processes	3
M E 469	Internal Combustion Engines	3
M E/N E 565	Power Plant Technology	3

M E 514	Additive Manufacturing	3
M E/E C E 577	Automatic Controls Laboratory	4
M E 601	Special Topics in Mechanical Engineering (Fundamentals of Microfabrication) <sup>2</sup>	1-3
M E 601	Special Topics in Mechanical Engineering (Design and Prototype Fabrication) <sup>2</sup>	1-3
M E 601	Special Topics in Mechanical Engineering (Material Selection) <sup>2</sup>	1-3
M E 717	Advanced Polymer Processing <sup>1</sup>	3
M E/E C E 739	Advanced Robotics <sup>1</sup>	3
M E 747	Advanced Computer Control of Machines and Processes <sup>1</sup>	3
M E/CBE 567	Solar Energy Technology	3
M S & E 434	Introduction to Thin-Film Deposition Processes	3
M S & E 461	Advanced Metal Casting	3
N E 405	Nuclear Reactor Theory	3
M S & E 465	Fundamentals of Heat Treatment	3
N E 405	Nuclear Reactor Theory	3
<b>Fundamentals of Systems Engineering and Design</b>		
CBE 430	Chemical Kinetics and Reactor Design	3
CIV ENGR 498	Construction Project Management	3
CIV ENGR 370	Transportation Engineering	3
CIV ENGR 498	Construction Project Management <sup>2</sup>	3
COMP SCI/E C E 755	VLSI Systems Design	3
COMP SCI/E C E 756	Computer-Aided Design for VLSI <sup>1</sup>	3
E C E 427	Electric Power Systems	3
M E 418	Engineering Design with Polymers	3
M E 444	Design Problems in Elasticity	3
M E 535	Computer-Aided Geometric Design	3
M E 549	Product Design	3
M E 601	Special Topics in Mechanical Engineering (Mechatronics in Control and Product Realization) <sup>2</sup>	1-3
M E 601	Special Topics in Mechanical Engineering (Design of Computer Control Systems) <sup>2</sup>	1-3
M E 601	Special Topics in Mechanical Engineering (Computer Aided Design and Analysis of Mechanical Systems) <sup>2</sup>	1-3
M E 748	Optimum Design of Mechanical Elements and Systems <sup>1</sup>	3
MARKETNG 427	Enterprise Systems and Supply Chain Management	3
MARKETNG 440	Emerging Issues in New Product Development	3
MARKETNG 740	Emerging Issues in New Product Development	3
OTM 860	Sustainable Design of Innovative Products, Services and Systems	3
I SY E/M E 510	Facilities Planning	3

I SY E/M E 512	Inspection, Quality Control and Reliability	3
I SY E 515	Engineering Management of Continuous Process Improvement	3
I SY E 520	Quality Assurance Systems	3
I SY E/B M E 564	Occupational Ergonomics and Biomechanics	3
I SY E 575	Introduction to Quality Engineering	3
I SY E 612	Information Sensing and Analysis for Manufacturing Processes	3
I SY E/OTM 620	Simulation Modeling and Analysis	3
I SY E/M E 643	Performance Analysis of Manufacturing Systems	3
OTM 654	Production Planning and Control	3
OTM 770	Sustainable Approaches to System Improvement <sup>1,3</sup>	4
OTM 875	Seminar in Operations and Technology Management	3
STAT/M E 424	Statistical Experimental Design	3
<b>Fundamentals of Business and Management</b>		
ACCT I S 300	Accounting Principles	3
ACCT I S 301	Financial Reporting I	3
ACCT I S 710	Managerial Accounting	3
GEN BUS 765	Contemporary Topics	1-4
FINANCE/ECON 300	Introduction to Finance	3
FINANCE 757	Entrepreneurial Finance <sup>1</sup>	3
I SY E/PSYCH 653	Organization and Job Design	3
M H R 700	Organizational Behavior	3
M H R 715	Strategic Management of Innovation <sup>1</sup>	3
M H R 722	Entrepreneurial Management <sup>1</sup>	3
M H R 765	Contemporary Topics <sup>1</sup>	1-4
MARKETNG/OTM 421	Fundamentals of Supply Chain Management	3
MARKETNG/OTM 422	Logistics Management	3
MARKETNG 724	Strategic Global Sourcing	3
OTM 365 & OTM 765	Contemporary Topics and Contemporary Topics	2-7
OTM 758	Managing Technological and Organizational Change <sup>1</sup>	3
OTM 861	Strategic Systems and Sustainability	3

<sup>1</sup> Most 700-level courses are only taught every three or four semesters. Please check with instructor about the next offering before completing study plan.

<sup>2</sup> This course number is used for multiple seminar classes. Please check the Course Guide for correct listing.

<sup>3</sup> Offered online through Sustainable Systems Engineering.

## ADMISSIONS

**Admission information for the on-campus Manufacturing Systems Engineering M.S.** To be admitted to the M.S. program, applicants must

satisfy the Graduate School's minimum admission requirements as well as the following program requirements: undergraduate engineering degree from an ABET-accredited program or its equivalent (students with a physical sciences degree other than engineering and considerable industry experience are also eligible); an undergraduate grade point average of at least 3.0 on a 4.0 scale (exceptions may be made by the admissions committee in favor of applicants with industry experience); and at least two years of work experience in manufacturing. Students applying from non-U.S. universities must supply GRE and either TOEFL, MELAB, or IELTS scores. For more information, contact mse@engr.wisc.edu.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

### PROFESSIONAL CONDUCT

- recognize and apply principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Pfefferkorn (director; Mechanical Engineering), Ceglarek (Industrial and Systems Engineering), DeCroix (School of Business), Duffie (Mechanical Engineering), Engelstad (Mechanical Engineering), Finster (School of Business), Krishnamurthy (Industrial and Systems Engineering), Lazimy (School of Business), Li (Industrial and Systems Engineering), Livny (Computer Science), Lorenz (Mechanical Engineering), Matusumura (School of Business), Moskwa (Mechanical Engineering), O'Leary (Engineering Professional Development), Oliva (Civil and Environmental Engineering), Osswald (Mechanical Engineering), Radwin (Industrial and Systems Engineering), Ran (Civil and Environmental Engineering), Rowlands (Mechanical Engineering), Russell (Civil and Environmental Engineering), Shi (Industrial and Systems Engineering), Stone (Material Science and Engineering), Suresh (Mechanical Engineering), Turng (Mechanical Engineering), Veeramani (Industrial and Systems Engineering), Vieth (Engineering Professional Development), Wemmerlov (School of Business), Zhou (Industrial and Systems Engineering)

## MATERIALS SCIENCE, M.S.

**The requirements for the M.S. in Materials Science have been merged with Materials Engineering. See "Materials Science & Engineering". Admission to the program has been suspended. The information that appears in this entry is provided for the benefit of students currently admitted to the program.**

**Administrative Unit:** Material Sciences Program

**College/School:** College of Engineering

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., M.Eng., Ph.D.

**Minors and Certificates:** Doctoral Minor

## OVERVIEW

Society's demand for a rapid and diverse succession of new, specialized materials requires a flexible and interdisciplinary approach to materials research and education. In the past, specialized materials were developed through a trial-and-error process. Today, the tools and expertise of scientists are being combined with those of engineers resulting in productive cooperation in both applied and theoretical areas.

Our search for new materials and the need to make better use of old ones continues to broaden the field of materials science. Creating the next generation of advanced materials—polymers, ceramics, metals, semiconductors or biomaterials—and advanced devices—such as lasers, micromotors, nanoscale technology or engineered tissues—requires a mastery of materials and interfaces with atomic to macroscopic level understanding. This is the challenging and exciting domain of materials science.

The Materials Science Program at UW–Madison is nationally recognized and is committed to providing leadership in research, education and outreach services. Graduate studies in our program at UW–Madison can lead to the M.S. and Ph.D. degrees in materials science.

The Materials Science Program provides excellent opportunities for interdisciplinary research through its faculty advisory committee made up of many faculty from departments throughout the UW–Madison campus. Represented in the MSP are virtually all of the engineering departments, as well as chemistry, physics, geology, human ecology, biological systems engineering, as well as several of the biological and medical sciences. Graduate students select their thesis research topics based on materials and interfaces that involve polymers, superconductors, semiconductors, advanced metals, composites, biological materials, or ceramics. Degree requirements are extremely flexible, permitting the student and advisors to formulate an educational plan that is optimal for the student's educational and professional objectives.

The Materials Science Center (MSC) has state-of-the-art electron microscopes, X-ray diffractometers, atomic force microscopes, surface analysis equipment, and advanced light microscopes available for hands-on use by materials science students. Augmenting the Center's capabilities is an impressive array of dedicated campus facilities, including the Synchrotron Radiation Center, and the Wisconsin Center for Applied Microelectronics. Kurt F. Wendt Library houses a comprehensive collection of reference material in engineering and the physical sciences. The MSC and MSP offices are located on the engineering campus, near Union South, a student center with a snack bar, cafeteria, and social, game, and activity areas.

A weekly seminar program provides students with an opportunity to hear and meet outstanding materials scientists and engineers from around the world.

Research assistantships generally are available to qualified applicants. Opportunities to obtain teaching assistantships are available directly with the departments of our faculty and not through the Materials Science Program office. Exceptionally well-qualified applicants are eligible for graduate fellowships.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 15 of the required 30 credits must be in courses designed for graduate work, which may include graduate-level math (EP 547), any courses taken at the 700 level or above (including classroom courses and master's research, thesis, and seminar courses), and those courses that have been identified as graduate level by the courses' subject owner. All courses must be approved by advisor and the MSP and must be relevant to the student's scientific/engineering goals.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count up to two graduate courses from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

When rigorous and consistent with expectations of graduate work, up to 7 credits numbered 300 and above may be counted toward the minimum graduate degree credit requirement; if those courses are numbered 700 or above, they may be counted toward the minimum graduate coursework (50%) requirement. No credits can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between Special and graduate tuition), students are allowed to count up to 15 credits of coursework taken as a UW–Madison Special student numbered 300 or above toward the minimum graduate residence credit requirement and the minimum graduate degree credit requirement; if the coursework is numbered 700 or above, it may count toward the minimum graduate coursework (50%) requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.



## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENTS AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

**The requirements for the M.S. in Materials Science have been merged with Materials Engineering. See "Materials Science & Engineering". Admission to the program has been suspended. The information that**

**appears in this entry is provided for the benefit of students currently admitted to the program.**

Admission to the Materials Science Program (MSP) is evaluated by the program's admissions committee. The evaluation is based on the applicant's previous academic record(s), Graduate Record Exam (GRE) scores, TOEFL or IELTS (if applicable), letters of recommendation, and a personal statement. Admission is competitive. Applicants are normally expected to have a bachelor's degree in engineering or the sciences, with courses in mathematics through differential equations, at least one year each of physics and chemistry, and a course in physical chemistry and/or modern physics.

**For more information:** Diana Rhoads, 1509 University Avenue #276, Madison, WI 53706; 608-263-1795; matsciad@engr.wisc.edu; www.engr.wisc.edu/interd/msp.

## PEOPLE

**Faculty:** Professor Vanderby (director) (BME/Ortho); Associate Professor Stone (associate director) (Materials Science and Engineering); Professors Abbott (Chemical and Biological Engineering), Anderson (Civil and Environmental Engineering), Babcock (Materials Science and Engineering), Beebe (Biomedical Engineering), Blick (Electrical and Computer Engineering), Booske (Electrical and Computer Engineering), Botez (Electrical and Computer Engineering), Coppersmith (Physics), Cramer (Civil and Environmental Engineering), Drugan (Engineering Physics), Eom (Materials Science and Engineering), Eriksson (Physics), Giacomini (Mechanical Engineering), Gilbert (Physics), Hamers (Chemistry), Hitchon (Electrical and Computer Engineering), Keely (Cell and Regenerative Biology), Klingenberg (Chemical and Biological Engineering), Kou (Materials Science and Engineering), Kuech (Chemical and Biological Engineering), Lagally (Materials Science and Engineering), Lakes (Engineering Physics/Biomedical Engineering), Martin (Mechanical Engineering), Mawst (Electrical and Computer Engineering), McCaughan (Electrical and Computer Engineering), Nealey (Chemical and Biological Engineering), Onellion (Physics), Osswald (Mechanical Engineering), Perepezko (Materials Science and Engineering), Rowlands (Mechanical Engineering), Sarmadi (Human Ecology), Shohet (Electrical and Computer Engineering), Tikoff (Geology and Geophysics), Turng (Mechanical Engineering), Vanderweide (Electrical and Computer Engineering), Wendt (Electrical and Computer Engineering), Winokur (Physics), Wong (Bacteriology); Associate Professors Allen (Engineering Physics), Block (Medical Physics), Chesler (Biomedical Engineering), Crone (Engineering Physics), Evans (Materials Science and Engineering), Gopalan (Materials Science and Engineering), Gong (Biomedical Engineering), Jiang (Electrical and Computer Engineering), Jin (Chemistry), Li (Mechanical Engineering), Lynn (Chemical and Biological Engineering), Ma (Electrical and Computer Engineering), Masters (Biomedical Engineering), Morgan (Materials Science and Engineering), Murphy (Biomedical Engineering), Negrut (Mechanical Engineering), Palecek (Chemical and Biological Engineering), Pfeifferkorn (Mechanical Engineering), Ploeg (Mechanical Engineering), Root (Chemical and Biological Engineering), Rzczowski (Physics); Szulafarska (Materials Science and Engineering), Thelen (Mechanical Engineering), Voyles (Materials Science and Engineering), Williams (Biomedical Engineering), Xu (Geology and Geophysics); Assistant Professors Arnold (Materials Science and Engineering), Cai (Radiology/Medical Physics), Li (BME/Ortho), Mahanthappa (Chemistry), McDermott (Physics), Ogle (Biomedical Engineering), Sheinis (Astronomy), Wang (Materials Science and Engineering), Weibel (Biochemistry)

## MATERIALS SCIENCE, PH.D.

The requirements for the Ph.D. in materials science have been merged with materials engineering. See **Materials Science and Engineering** (<http://guide.wisc.edu/graduate/engineering-college-wide/materials-science-engineering-phd>). **Admission to the program has been suspended. The information that appears in this entry is provided for the benefit of students currently admitted to the program.**

**Administrative Unit:** Material Sciences Program

**College/School:** College of Engineering

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., M.Eng., Ph.D.

**Minors and Certificates:** Doctoral Minor

Society's demand for a rapid and diverse succession of new, specialized materials requires a flexible and interdisciplinary approach to materials research and education. In the past, specialized materials were developed through a trial-and-error process. Today, the tools and expertise of scientists are being combined with those of engineers resulting in productive cooperation in both applied and theoretical areas.

Our search for new materials and the need to make better use of old ones continues to broaden the field of materials science. Creating the next generation of advanced materials—polymers, ceramics, metals, semiconductors or biomaterials—and advanced devices—such as lasers, micromotors, nanoscale technology or engineered tissues—requires a mastery of materials and interfaces with atomic to macroscopic level understanding. This is the challenging and exciting domain of materials science.

The Materials Science Program at UW–Madison is nationally recognized and is committed to providing leadership in research, education and outreach services. Graduate studies in our program at UW–Madison can lead to the M.S. and Ph.D. degrees in materials science.

The Materials Science Program provides excellent opportunities for interdisciplinary research through its faculty advisory committee made up of many faculty from departments throughout the UW–Madison campus. Represented in the MSP are virtually all of the engineering departments, as well as chemistry, physics, geology, human ecology, biological systems engineering, as well as several of the biological and medical sciences. Graduate students select their thesis research topics based on materials and interfaces that involve polymers, superconductors, semiconductors, advanced metals, composites, biological materials, or ceramics. Degree requirements are extremely flexible, permitting the student and advisors to formulate an educational plan that is optimal for the student's educational and professional objectives.

The Materials Science Center (MSC) has state-of-the-art electron microscopes, X-ray diffractometers, atomic force microscopes, surface analysis equipment, and advanced light microscopes available for hands-on use by materials science students. Augmenting the Center's capabilities is an impressive array of dedicated campus facilities, including the Synchrotron Radiation Center, and the Wisconsin Center for Applied Microelectronics. Kurt F. Wendt Library houses a comprehensive collection of reference material in engineering and the physical sciences. The MSC and MSP offices are located on the engineering campus, near Union South, a student center with a snack bar, cafeteria, and social, game, and activity areas.

A weekly seminar program provides students with an opportunity to hear and meet outstanding materials scientists and engineers from around the world.

Research assistantships generally are available to qualified applicants. Opportunities to obtain teaching assistantships are available directly with the departments of our faculty and not through the Materials Science Program office. Exceptionally well-qualified applicants are eligible for graduate fellowships.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 26 of the required 51 credits must be in courses designed for graduate work, which may include graduate-level math (EP 547), any courses taken at the 700 level or above (including classroom courses and master's research, thesis, and seminar courses), and those courses that have been identified as graduate level by the courses' subject owner. All courses must be approved by advisor and the MSP and must be relevant to the student's scientific/engineering goals.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count up to two graduate courses from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

When rigorous and consistent with expectations of graduate work, up to 7 credits numbered 300 and above may be counted toward the minimum graduate degree credit requirement; if those courses are numbered 700 or above, they may be counted toward the minimum graduate coursework (50%) requirement. No credits can be counted toward the minimum graduate residence credit requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between Special and graduate tuition), students are allowed to count up to 15 credits of coursework taken as a UW–Madison Special student numbered 300 or above toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement; if the coursework is numbered 700 or above, it may count toward the minimum graduate coursework (50%) requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENTS AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

**The requirements for the M.S. in Materials Science have been merged with Materials Engineering. See "Materials Science & Engineering". Admission to the program has been suspended. The information that appears in this entry is provided for the benefit of students currently admitted to the program.**

Admission to the Materials Science Program (MSP) is evaluated by the program's admissions committee. The evaluation is based on the applicant's previous academic record(s), Graduate Record Exam (GRE) scores, TOEFL or IELTS (if applicable), letters of recommendation, and a personal statement. Admission is competitive. Applicants are normally expected to have a bachelor's degree in engineering or the sciences, with courses in mathematics through differential equations, at least one year each of physics and chemistry, and a course in physical chemistry and/or modern physics.

**For more information:** Diana Rhoads, 1509 University Avenue #276, Madison, WI 53706; 608-263-1795; matsciad@engr.wisc.edu; [www.engr.wisc.edu/interd/msp](http://www.engr.wisc.edu/interd/msp).

## PEOPLE

**Faculty:** Professor Vanderby (director) (BME/Ortho); Associate Professor Stone (associate director) (Materials Science and Engineering); Professors Abbott (Chemical and Biological Engineering), Anderson (Civil and Environmental Engineering), Babcock (Materials Science and Engineering), Beebe (Biomedical Engineering), Blick (Electrical and Computer Engineering), Booske (Electrical and Computer Engineering), Botez (Electrical and Computer Engineering), Coppersmith (Physics), Cramer (Civil and Environmental Engineering), Drugan (Engineering Physics), Eom (Materials Science and Engineering), Eriksson (Physics), Giacomini (Mechanical Engineering), Gilbert (Physics), Hamers (Chemistry), Hitchon (Electrical and Computer Engineering), Keely (Cell and Regenerative Biology), Klingenberg (Chemical and Biological Engineering), Kou (Materials Science and Engineering), Kuech (Chemical and Biological Engineering), Lagally (Materials Science and Engineering), Lakes (Engineering Physics/Biomedical Engineering), Martin (Mechanical Engineering), Mawst (Electrical and Computer Engineering), McCaughan (Electrical and Computer Engineering), Nealey (Chemical and Biological Engineering), Onellion (Physics), Osswald (Mechanical Engineering), Perepezko (Materials Science and Engineering), Rowlands (Mechanical Engineering), Sarmadi (Human Ecology), Shohet (Electrical and Computer Engineering), Tikoff (Geology and Geophysics), Turng (Mechanical Engineering), Vanderweide (Electrical and Computer Engineering),

Wendt (Electrical and Computer Engineering), Winokur (Physics), Wong (Bacteriology); Associate Professors Allen (Engineering Physics), Block (Medical Physics), Chesler (Biomedical Engineering), Crone (Engineering Physics), Evans (Materials Science and Engineering), Gopalan (Materials Science and Engineering), Gong (Biomedical Engineering), Jiang (Electrical and Computer Engineering), Jin (Chemistry), Li (Mechanical Engineering), Lynn (Chemical and Biological Engineering), Ma (Electrical and Computer Engineering), Masters (Biomedical Engineering), Morgan (Materials Science and Engineering), Murphy (Biomedical Engineering), Negrut (Mechanical Engineering), Palecek (Chemical and Biological Engineering), Pfefferkorn (Mechanical Engineering), Ploeg (Mechanical Engineering), Root (Chemical and Biological Engineering), Rzchowski (Physics); Szlufarska (Materials Science and Engineering), Thelen (Mechanical Engineering), Voyles (Materials Science and Engineering), Williams (Biomedical Engineering), Xu (Geology and Geophysics); Assistant Professors Arnold (Materials Science and Engineering), Cai (Radiology/Medical Physics), Li (BME/Ortho), Mahanthappa (Chemistry), McDermott (Physics), Ogle (Biomedical Engineering), Sheinis (Astromony), Wang (Materials Science and Engineering), Weibel (Biochemistry)

# ENGLISH

**Administrative Unit:** English

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., MFA, Ph.D.

**Degrees Offered:** M.A. in English; M.A. in Interdisciplinary Theatre Studies; MFA in Creative Writing; Ph.D. in English; Ph.D. in Interdisciplinary Theatre Studies

**Minors and Certificates:** Doctoral Minor in Creative Writing; Doctoral Minor in English; Doctoral Minor in English Linguistics; Graduate/Professional Certificate in Teaching English to Speakers of Other Languages

**Specializations:** Literary Studies, Composition and Rhetoric, or Language and Linguistics (See also Creative Writing.)

The Department of English offers a Ph.D. in English (with specializations in composition and rhetoric, English language and linguistics, or literary studies); an MFA in creative writing; and a terminal M.A. in English with a specialization in applied English linguistics. Students enrolled in the literary studies Ph.D. specialization become eligible for an M.A. English degree in the literary studies area when they successfully complete the first-stage doctoral requirements. The literary studies specialization does not offer an M.A. apart from the doctoral program. Students enrolled in the composition and rhetoric track in English must have a master's degree in hand prior to matriculation in the doctoral program.

The doctoral program in the literary studies area offers a rigorous course of study leading to the completion of a doctoral dissertation in any field of English, American, or Anglophone literature and culture, or in any field of literary theory and criticism. The program prepares students for active careers in research and teaching at the university, and combines a sharp focus on conceptual approaches to literary and cultural works with a commitment to broad coverage of the field of Anglophone literature. Graduate seminars taken during the first phases of the doctoral program serve to prepare students to develop research projects for the dissertation. As they progress toward the Ph.D., students are invited to consider interdisciplinary sub-specialties: literary theory and criticism, visual studies, ecocriticism and environmentalism, transnational and global literature, material culture, print culture and book history, digital humanities, disability studies, gender studies, race and ethnic studies, feminist theory, LGBTQ literature and queer theory, postcolonial studies. The program provides opportunities for teaching writing and literature and for administrative experience.

The doctoral program in the composition and rhetoric area prepares students for well-rounded careers as scholar-teachers. This multidisciplinary program with a small faculty-to-student ratio facilitates study in composition theory and practice, rhetoric, literacy, and critical theory. Opportunities for professional development in teaching, research, and writing program administration are all vital elements of the program.

The English doctoral program in the English language and linguistics area is intended for students with a solid foundation at the master's level in the English language, applied linguistics, and related fields. Through a program of course work and seminars, doctoral students attain advanced knowledge in the core areas of English syntax and phonology and in the applied areas of second language acquisition, discourse analysis, and language variation and change. On reaching the dissertation stage, students pursue individual research in close cooperation with their faculty advisor. In recent years, students have written dissertations on code-switching, critical pedagogy, interactional

competence, conversation analysis, syntactic problems in second language acquisition, classroom discourse, and psycholinguistics. Graduates of the program have taken faculty positions at universities throughout the country.

The MFA program in creative writing provides training for writers through creative writing workshops in poetry or fiction, and through a broad choice of electives that may be academic classes or other workshops. The program also provides creative writing pedagogy training and teaching experience.

The M.A. program with a specialization in applied English linguistics provides broad training in applied English linguistics and second language acquisition (SLA). Students who graduate from this program will be well prepared to teach English as a second language, and those who do exceptionally well may apply for admission to the doctoral program in the English language and linguistics area.

Regarding catalog course listings: graduate seminars in English reflect the faculty's current areas of research and therefore change importantly from year to year. Please consult the department website for more detailed information.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Creative Writing, Doctoral Minor (p. 285)
- Creative Writing, MFA (p. 286)
- English Linguistics, Doctoral Minor (p. 287)
- English, Doctoral Minor (p. 287)
- English, M.A. (p. 287)
- English, Ph.D. (p. 289)
- Interdisciplinary Theatre Studies, M.A. (p. 291)
- Interdisciplinary Theatre Studies, Ph.D. (p. 292)
- Teaching English to Speakers of Other Languages, Graduate/Professional Certificate (p. 294)

## PEOPLE

**Faculty:** Professors Levine (chair), Auerbach, Barry, Begam, Bernard-Donals, Bernstein, Bow, Britland, Castronovo, Dharwadker, Ford, Friedman, Guyer, Hill, Johnson, Keller, Kelley, Kercheval, McKenzie, Mitchell, Olaniyan, Ortiz-Robles, Purnell, Raimy, Sherrard-Johnson, Steele, Wallace, Wanner, M. Young, R. Young, Zimmerman; Associate Professors Allewaert, Bearden, Cooper, Foys, Olson, Trotter, Samuels, Valenza, Yu; Assistant Professors Calhoun, Cho, Elsky, Evans, Fawaz, Hussen-Levy, Tanoukhi, Vareschi, Vieira, Zweck

## CREATIVE WRITING, DOCTORAL MINOR

The program in creative writing also offers doctoral students at the University of Wisconsin–Madison the chance to incorporate creative writing as part of their course of studies in the form of a minor in creative writing.

## PEOPLE

**Faculty:** Professors Barry, Johnson, Kercheval, Mitchell, Wallace; Assistant Professor Evans

## CREATIVE WRITING, MFA

The program in creative writing offers a two-year master of fine arts degree in creative writing in the areas of fiction and poetry. The MFA program is a small program within a large and vibrant writing community. The program typically admits six new students each year.

The MFA program is the only program of its kind to have an "alternating genre" admissions policy. The program admits fiction writers in even-numbered years and poets in odd-numbered years. This alternating admissions schedule allows the program to provide a 2 to 1 student/teacher ratio and lets fiction instructors focus entirely on one group of fiction writers, and poetry instructors on one group of poets for the two-year instructional period.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER OF FINE ARTS DEGREE

MFA, with available tracks in Fiction or Poetry

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

42 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

More than half of degree coursework (27 out of 42 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 12 credits of graduate coursework from other institutions. coursework

earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 10 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Fiction track: ENGL 781 Graduate Fiction Workshop

Poetry track: ENGL 782 Graduate Poetry Workshop

Both tracks: ENGL 783 Creative Writing Pedagogy Seminar and ENGL 785 MFA Thesis

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

No other specific grade requirements.

### PROBATION POLICY

The MFA advisor (sometimes referred to as the MFA program director) will review student academic performance and conduct in all coursework to determine that students are making satisfactory progress toward the degree. If at any time the MFA advisor determines that a student's academic performance and/or conduct has not been satisfactory, the MFA advisor, with the input and concurrence of the voting members of the Creative Writing Steering Committee, may place the student on probation or may dismiss the student from the program. The period of probation will be one semester in duration. Prior to the end of the probationary period the MFA advisor will review the student's performance and conduct and decide, with the input and concurrence of the voting members of the Creative Writing Steering Committee, to reinstate or dismiss the student.

### ADVISOR / COMMITTEE

The current MFA advisor (sometimes referred to as the MFA program director) advises all MFA students.

### ASSESSMENTS AND EXAMINATIONS

MFA candidates must submit a publishable written thesis in the genre in which they were admitted (fiction or poetry).

### TIME CONSTRAINTS

It is expected that the MFA thesis be completed in May of the second year in the program.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their

absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Imagine, create, and complete original literary works in the primary genre of study (poetry or fiction) in a manner that is sensitive to language and style.
- Develop editing skills including employing editing and revision techniques and strategies to work in progress; synthesizing evaluations and editorial advice from others; and analyzing, editing, and evaluating work in progress by peers.
- Analyze, evaluate, and demonstrate understanding of works in the primary genre with special emphasis on current modes and practices.
- Demonstrate knowledge of literary forms and devices both as a writer and as a reader, and locate one's own work within literary and cultural contexts.
- "Read as a writer," that is, read work in the primary genre not only for its social, historical, intellectual, formal and interpretive value, but also for its capacity to inspire and generate new work and to discover in the finished work the process of its being made.

### PROFESSIONAL CONDUCT

- Demonstrate understanding of professional and pedagogical practices and opportunities within and related to the field of creative writing.
- Recognize and apply principles of ethical conduct with respect to one's work.

### ADDITIONAL LEARNING GOALS

- Engage with local communities of creative writers.

## PEOPLE

**Faculty:** Professors Barry, Johnson, Kercheval, Mitchell, Wallace; Assistant Professor Evans

## ENGLISH LINGUISTICS, DOCTORAL MINOR

## ENGLISH, DOCTORAL MINOR

### REQUIREMENTS

Ph.D. students in English must complete a minor in a field or program other than English. (Students in any of the three English doctoral specializations may earn a distributed minor in either of the remaining two. For example, literary studies students may earn a distributed

minor in composition and rhetoric or linguistics study, and so on.) Ph.D. candidates from other programs who wish to pursue a minor in English must secure advance approval of their proposed course of study from the director of graduate studies in English. A minor in English consists of 10–12 credits of graduate work with no grade lower than B. The department offers a minor in English (with concentrations in literature, composition and rhetoric, English language and linguistics) and a minor in creative writing with the approval of the creative writing faculty.

## PEOPLE

**Faculty:** Professors Levine (chair), Auerbach, Barry, Begam, Bernard-Donals, Bernstein, Bow, Britland, Castronovo, Dharwadker, Ford, Friedman, Guyer, Hill, Johnson, Keller, Kelley, Kercheval, McKenzie, Mitchell, Olaniyan, Ortiz-Robles, Purnell, Raimy, Sherrard-Johnson, Steele, Wallace, Wanner, M. Young, R. Young, Zimmerman; Associate Professors Allewaert, Bearden, Cooper, Foy, Olson, Trotter, Samuels, Valenza, Yu; Assistant Professors Calhoun, Cho, Elsky, Evans, Fawaz, Hussen-Levy, Tanoukhi, Vareschi, Vieira, Zweck

## ENGLISH, M.A.

The Department of English offers a Ph.D. in English (with specializations in composition and rhetoric, English language and linguistics, or literary studies); an MFA in creative writing; and a terminal M.A. in English with a specialization in applied English linguistics. Students enrolled in the literary studies Ph.D. specialization become eligible for an M.A. English degree in the literary studies area when they successfully complete the first-stage doctoral requirements. The literary studies specialization does not offer an M.A. apart from the doctoral program. Students enrolled in the composition and rhetoric track in English must have a master's degree in hand prior to matriculation in the doctoral program.

The M.A. program with a specialization in applied English linguistics provides broad training in applied English linguistics and second language acquisition (SLA). Students who graduate from this program will be well prepared to teach English as a second language, and those who do exceptionally well may apply for admission to the doctoral program in the English language and linguistics area.

Regarding catalog course listings: graduate seminars in English reflect the faculty's current areas of research and therefore change importantly from year to year. Please consult the department website for more detailed information.

### REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., with available tracks in applied English linguistics, and literary studies

**MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT**

M.A.—applied English linguistics track: 33 credits

M.A.—literary studies track: 32 credits

**MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT**

M.A.—applied English linguistics track: 16 credits

M.A.—literary studies track: 18 credits

**MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT**

M.A.—applied English linguistics track: All required courses in the MA track in applied English linguistics must be taken for graduate credit when available. At least 21 credits out of the required 33 taken in graduate level work. Courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>)

M.A.—literary studies track: All coursework for this degree (30 credits) must be taken in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

**PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

M.A.—applied English linguistics track: With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.A.—literary studies track: With program approval, students are allowed to count no more than 9 (typically 3 to 6) credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's is not allowed to satisfy requirements.

**PRIOR COURSEWORK REQUIREMENTS: UW—MADISON UNDERGRADUATE**

M.A.—applied English linguistics track: With program approval, students are allowed to count no more than 6 credits of relevant coursework from UW—Madison undergraduate coursework. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.A.—literary studies track: No credits from a UW—Madison undergraduate degree are allowed to count toward the degree.

**PRIOR COURSEWORK REQUIREMENTS: UW—MADISON UNIVERSITY SPECIAL**

M.A.—both tracks: With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW—Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

**CREDITS PER TERM ALLOWED**

12 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

All coursework for this degree (30 credits) must be completed in English courses numbered 700 or above (with the exception of ENGL/

MEDIEVAL 520 Old English and ENGL/MEDIEVAL 521 Advanced Old English Literature). Contact the program for more information on any required courses.

**OVERALL GRADUATE GPA REQUIREMENT**

3.00

**OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

**PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

**ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

**ASSESSMENT AND EXAMINATIONS**

Contact the program for information on required assessments and examinations.

**TIME CONSTRAINTS**

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

**LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

**ADMISSIONS**

The department requires an applicant to have a bachelor's or master's degree from an accredited institution. Applicants for the M.A. and Ph.D. degrees typically demonstrate competence in the fields of English literature or language, American studies, or linguistics, but the department also welcomes applications from superior students who have not had the equivalent of an English major. Such students may be asked to supplement the normal program of study by completing a small number of coverage courses. Applicants for the MFA degree are expected to demonstrate competence and promise in the genre in which they are applying. MFA students are not necessarily expected



to be knowledgeable in the same areas specified for M.A. and Ph.D. applicants. Applicants for the Ph.D. specialization in composition & rhetoric may have bachelors and masters from a variety of fields beyond English but must complete a master's degree or equivalent before beginning the doctoral program. All graduate degree programs in the department except the MFA normally require Graduate Record Exam (GRE) scores no more than five years old. International students whose native language is not English are required to take the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources or models and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Levine (chair), Auerbach, Barry, Begam, Bernard-Donals, Bernstein, Bow, Britland, Castronovo, Dharwadker, Ford, Friedman, Guyer, Hill, Johnson, Keller, Kelley, Kercheval, McKenzie, Mitchell, Olaniyan, Ortiz-Robles, Purnell, Raimy, Sherrard-Johnson, Steele, Wallace, Wanner, M. Young, R. Young, Zimmerman; Associate Professors Allewaert, Bearden, Cooper, Foy, Olson, Trotter, Samuels, Valenza, Yu; Assistant Professors Calhoun, Cho, Elsky, Evans, Fawaz, Hussen-Levy, Tanoukhi, Vareschi, Vieira, Zweck

## ENGLISH, PH.D.

The Department of English offers a Ph.D. in English (with specializations in composition and rhetoric, English language and linguistics, or literary studies); an MFA in creative writing; and a terminal M.A. in English with a specialization in applied English linguistics. Students enrolled in the literary studies Ph.D. specialization become eligible for an M.A. English degree in the literary studies area when they successfully complete the first-stage doctoral requirements. The literary studies specialization does not offer an M.A. apart from the doctoral program. Students enrolled in the composition and rhetoric track in English must have a master's degree in hand prior to matriculation in the doctoral program.

The doctoral program in the literary studies area offers a rigorous course of study leading to the completion of a doctoral dissertation in any field of English, American, or Anglophone literature and culture,

or in any field of literary theory and criticism. The program prepares students for active careers in research and teaching at the university, and combines a sharp focus on conceptual approaches to literary and cultural works with a commitment to broad coverage of the field of Anglophone literature. Graduate seminars taken during the first phases of the doctoral program serve to prepare students to develop research projects for the dissertation. As they progress toward the Ph.D., students are invited to consider interdisciplinary sub-specialties: literary theory and criticism, visual studies, ecocriticism and environmentalism, transnational and global literature, material culture, print culture and book history, digital humanities, disability studies, gender studies, race and ethnic studies, feminist theory, LGBTQ literature and queer theory, postcolonial studies. The program provides opportunities for teaching writing and literature and for administrative experience.

The doctoral program in the composition and rhetoric area prepares students for well-rounded careers as scholar-teachers. This multidisciplinary program with a small faculty-to-student ratio facilitates study in composition theory and practice, rhetoric, literacy, and critical theory. Opportunities for professional development in teaching, research, and writing program administration are all vital elements of the program.

The English doctoral program in the English language and linguistics area is intended for students with a solid foundation at the master's level in the English language, applied linguistics, and related fields. Through a program of course work and seminars, doctoral students attain advanced knowledge in the core areas of English syntax and phonology and in the applied areas of second language acquisition, discourse analysis, and language variation and change. On reaching the dissertation stage, students pursue individual research in close cooperation with their faculty advisor. In recent years, students have written dissertations on code-switching, critical pedagogy, interactional competence, conversation analysis, syntactic problems in second language acquisition, classroom discourse, and psycholinguistics. Graduates of the program have taken faculty positions at universities throughout the country.

Regarding catalog course listings: graduate seminars in English reflect the faculty's current areas of research and therefore change importantly from year to year. Please consult the department website for more detailed information.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D., with available tracks in composition and rhetoric, English language and linguistics, and literary studies

**MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT**

Ph.D.—composition and rhetoric track: 51 credits

Ph.D.—English language and linguistics track: 63 credits

Ph.D.—literary studies track: 51 credits

**MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT**

Ph.D.—all tracks: 32 credits

**MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT**

At least half of the degree coursework credits must be taken in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

**PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

Ph.D.—composition and rhetoric track, and English language and linguistics track: With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

Ph.D.—literary studies track: With program approval, students are allowed to count no more than 9 (typically 3 to 6) credits of graduate coursework from other institutions. coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

**PRIOR COURSEWORK REQUIREMENTS: UW—MADISON UNDERGRADUATE**

Ph.D.—all tracks: No credits from a UW—Madison undergraduate degree are allowed to count toward the degree.

**PRIOR COURSEWORK REQUIREMENTS: UW—MADISON UNIVERSITY SPECIAL**

Ph.D.—all tracks: With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW—Madison Special student. coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

**CREDITS PER TERM ALLOWED**

12 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any required courses.

**DOCTORAL MINOR/BREADTH REQUIREMENTS**

Doctoral students must complete a doctoral minor.

**OVERALL GRADUATE GPA REQUIREMENT**

3.00

**OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher

grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

**PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

**ADVISOR**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

**ASSESSMENT AND EXAMINATIONS**

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

**TIME CONSTRAINTS**

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

**LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

**ADMISSIONS**

The department requires an applicant to have a bachelor's or master's degree from an accredited institution. Applicants for the M.A. and Ph.D. degrees typically demonstrate competence in the fields of English literature or language, American studies, or linguistics, but the department also welcomes applications from superior students who have not had the equivalent of an English major. Such students may be asked to supplement the normal program of study by completing a small number of coverage courses. Applicants for the MFA degree are expected to demonstrate competence and promise in the genre in which they are applying. MFA students are not necessarily expected to be knowledgeable in the same areas specified for M.A. and Ph.D. applicants. Applicants for the Ph.D. specialization in composition & rhetoric may have bachelors and masters from a variety of fields beyond English but

must complete a master's degree or equivalent before beginning the doctoral program. All graduate degree programs in the department except the MFA normally require Graduate Record Exam (GRE) scores no more than five years old. International students whose native language is not English are required to take the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Conducts research according to recognized standards in the field and crafts persuasive and original arguments that make a substantive contribution to the field.
- Demonstrates breadth as well as depth of knowledge in the field.
- Advances and articulates the value of contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Levine (chair), Auerbach, Barry, Begam, Bernard-Donals, Bernstein, Bow, Britland, Castronovo, Dharwadker, Ford, Friedman, Guyer, Hill, Johnson, Keller, Kelley, Kercheval, McKenzie, Mitchell, Olaniyan, Ortiz-Robles, Purnell, Raimy, Sherrard-Johnson, Steele, Wallace, Wanner, M. Young, R. Young, Zimmerman; Associate Professors Allewaert, Bearden, Cooper, Foy, Olson, Trotter, Samuels, Valenza, Yu; Assistant Professors Calhoun, Cho, Elsky, Evans, Fawaz, Hussen-Levy, Tanoukhi, Vareschi, Vieira, Zweck

## INTERDISCIPLINARY THEATRE STUDIES, M.A.

The interdisciplinary theatre studies program prepares M.A. and Ph.D. students to pursue innovative, interdisciplinary research in theatre studies, and to conduct inquiry through scholarly research, practice as research and meaningful teaching experiences. The M.A. can serve as a preparatory degree for the Ph.D., or as a terminal degree for students seeking greater exposure to theatre, drama and performance studies beyond the undergraduate degree. Through rigorous coursework enhanced by the study of, and participation in, various forms of theatre and performance practice, the Ph.D. program prepares graduates for positions as college and university researchers and instructors, as well as public intellectuals and scholar/practitioners. Students with a background in theatre by, with, and for children and youth may apply to specialize in theatre for youth.

The program's core and affiliate faculty are leaders in theatre and performance studies, whose scholarship, practice and leadership in the profession are recognized nationally and abroad. The core faculty's strengths include global dramatic literatures, theatre history and

historiography, theatre and cultural theory, the theory and practice of theatre for youth, and relational performance. Our affiliate faculty expand the coursework and advising available to students, incorporating related fields of visual cultures, anthropology, art and art history, literary and theatre studies across English and non-English-speaking traditions, music, new media and digital design, gender and women's studies, and other disciplines.

The program attracts students from across the United States as well as internationally. It creates opportunities for students to engage in teaching and practice as part of their research. It also encourages students to participate in national and international professional meetings, working groups and colloquia; and to share their art and research through practice and publication in their field.

## FUNDING

Financial support available to students in the program includes fellowships, teaching assistantships and project assistantships. Please contact the program chair or graduate coordinator for more information about financial support.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students may count no more than 18 credits of graduate coursework from other institutions.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students may count up to 7 credits numbered 300 or above.

## **PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL**

With program approval, students may count up to 15 credits numbered 700 or above if difference in tuition is paid.

## **CREDITS PER TERM ALLOWED**

15 credits

## **PROGRAM-SPECIFIC COURSES REQUIRED**

One 3-credit course: Proseminar in Theatre Research, taken in the fall semester of the first year.

## **OVERALL GRADUATE GPA REQUIREMENT**

3.00 GPA required

## **OTHER GRADE REQUIREMENTS**

Candidates may not file more than one grade of Incomplete per semester.

## **PROBATION POLICY**

Students are reviewed annually by the research faculty and may be placed on probation if they are not making satisfactory progress on program requirements.

## **ADVISOR / COMMITTEE**

The thesis must be prepared under the supervision of the major professor.

Committee consists of three faculty members—advisor, at least one additional faculty member from interdisciplinary theatre studies, and one other member.

## **ASSESSMENTS AND EXAMINATIONS**

Significant participation in one University Theatre production (in a variety of positions) is required. A thesis is required; this thesis should be the product of the candidate's independent research.

A one-hour examination on the thesis presentation is required.

## **TIME CONSTRAINTS**

The M.A. program is designed to be completed in three to four semesters of full-time study. Students may request a variance in this time frame by approval of the research faculty.

## **LANGUAGE REQUIREMENTS**

No language requirements.

## **ADMISSIONS**

Applicants to the M.A. and Ph.D. degree programs in interdisciplinary theatre studies need to include in their application a thoughtful statement about their interests in theatre research and the areas in which they might like to study, as well a sample of their writing in the form of an advanced research paper. Applications are judged on the basis of the prospective student's previous academic record, Graduate Record Exam (GRE) scores, references, personal statement, and writing sample.

## **LEARNING OUTCOMES**

### **KNOWLEDGE AND SKILLS**

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in theatre, drama and performance.
- Identifies sources and assembles evidence pertaining to questions or challenges in the study of theatre, drama and performance.
- Demonstrates understanding of theatre, drama and performance in historical, social, and global contexts.
- Selects and/or utilizes the most appropriate methodologies and practices. Evaluates or synthesizes information pertaining to questions or challenges in the fields of drama, theatre and performance.
- Communicates clearly in projects that include collaborative theatre practice, writing seminar-level research papers, and a master's thesis.

### **PROFESSIONAL CONDUCT**

- Recognizes and applies principles of ethical and professional conduct.

## **PEOPLE**

**Faculty:** Professors Dharwadker, Vanden Heuvel, van de Water; Associate Professors Peterson, Trotter (chair). The program also works closely with affiliate faculty from programs across the university.

## **INTERDISCIPLINARY THEATRE STUDIES, PH.D.**

The interdisciplinary theatre studies program prepares M.A. and Ph.D. students to pursue innovative, interdisciplinary research in theatre studies, and to conduct inquiry through scholarly research, practice as research and meaningful teaching experiences. The M.A. can serve as a preparatory degree for the Ph.D., or as a terminal degree for students seeking greater exposure to theatre, drama and performance studies beyond the undergraduate degree. Through rigorous coursework enhanced by the study of, and participation in, various forms of theatre and performance practice, the Ph.D. program prepares graduates for positions as college and university researchers and instructors, as well as public intellectuals and scholar/practitioners. Students with a background in theatre by, with, and for children and youth may apply to specialize in theatre for youth.

The program's core and affiliate faculty are leaders in theatre and performance studies, whose scholarship, practice and leadership in the profession are recognized nationally and abroad. The core faculty's strengths include global dramatic literatures, theatre history and historiography, theatre and cultural theory, the theory and practice of theatre for youth, and relational performance. Our affiliate faculty expand the coursework and advising available to students, incorporating related fields of visual cultures, anthropology, art and art history, literary and theatre studies across English and non-English-speaking traditions, music, new media and digital design, gender and women's studies, and other disciplines.

The program attracts students from across the United States as well as internationally. It creates opportunities for students to engage in teaching and practice as part of their research. It also encourages students to participate in national and international professional meetings, working groups and colloquia; and to share their art and research through practice and publication in their field.

## FUNDING

Financial support available to students in the program includes fellowships, teaching assistantships and project assistantships. Please contact the program chair or graduate coordinator for more information about financial support.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students may count no more than 18 credits of graduate coursework from other institutions.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, students may count up to 7 credits numbered 300 or above.

### PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL

With program approval, students may count up to 15 credits numbered 700 or above if difference in tuition is paid.

### CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Proseminar in Theatre Research in the fall semester of the first year of study; seven courses in dramatic literature, history, theory and criticism; three courses in theatre practice; eight courses in an area of specialization; and, among these courses, three seminars.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor. Four courses in the outside minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.25 GPA required

## OTHER GRADE REQUIREMENTS

No other specific grade requirements.

## PROBATION POLICY

Students are reviewed annually by the research faculty and may be placed on probation if they are not making satisfactory progress on program requirements.

## ADVISOR / COMMITTEE

The dissertation must be prepared under supervision of the major professor.

Committee consists of five faculty members—advisor, at least two additional faculty members from interdisciplinary theatre studies, and at least one member from another department.

## ASSESSMENTS AND EXAMINATIONS

A preliminary portfolio examination in the areas of literature, history, and theory is required after course work is completed. This examination must be passed before being admitted into Ph.D. candidacy. A dissertation proposal must be submitted and defended after the completion of the preliminary examination.

## TIME CONSTRAINTS

The Prelim B exam (proposal defense) must be completed before the end of the second regular semester following the Prelim A exam.

Per Graduate School policy, doctoral students have five years from the date of passing preliminary examination to take the final oral examination and deposit the dissertation. Students may petition for an additional one-year extension.

## LANGUAGE REQUIREMENTS

Attain research competency in one language approved by the major professor.

## ADMISSIONS

Applicants to the M.A. and Ph.D. degree programs in interdisciplinary theatre studies need to include in their application a thoughtful statement about their interests in theatre research and the areas in which they might like to study, as well a sample of their writing in the form of an advanced research paper. Applications are judged on the basis of the prospective student's previous academic record, Graduate Record Exam (GRE) scores, references, personal statement, and writing sample.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate understanding of the theory, history, and practice of drama and theatre as collaborative cultural forms across historical periods.
- Master the methods and materials of theatre and performance research and writing in order to produce original scholarly projects that range in complexity from term papers to dissertations.
- Develop methods for theatre and performance practice and theory in order to test the reciprocal relations between research and practice through reflective participation in the production process.
- Identify and distinguish among the diverse global locations of theatre and the intercultural contact among theatre traditions, especially as these multiply in the modern and contemporary periods.

### PROFESSIONAL CONDUCT

- Prepare for future careers combining theatre and performance scholarship, teaching, and/or practice.
- Demonstrate professionalization in the discipline of theatre through participation in conferences and submission of work to scholarly journals.

## PEOPLE

**Faculty:** Professors Dharwadker, Vanden Heuvel, van de Water; Associate Professors Peterson, Trotter (chair). The program also works closely with affiliate faculty from programs across the university.

## TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES, GRADUATE/PROFESSIONAL CERTIFICATE

English is now the international language of the world, indispensable for those working in business and the professions, science and technology, and virtually all fields of education. The demand for learning English continues to be high in almost every region of the world; in addition, there continues to be a large number of immigrants in the United States who require instruction in English as a second language. The need for qualified teachers of English to speakers of other languages, both for adults and for school-age children, remains urgent. Since 1968, the Department of English, through its Programs in English Linguistics, has offered a certificate in TESOL designed to provide academic and pedagogical preparation for prospective ESL/EFL teachers.

## REQUIREMENTS

### CERTIFICATE REQUIREMENTS

- 9 credits of required graduate-level courses listed below along with all prerequisites and language requirements.
- A grade point average of 3.0 in all required courses except English 613–618, which are graded as Credit/No Credit.

- Teaching practice. This requirement is normally fulfilled by completion of ENGL 515.
- All requirements for the certificate in TESOL must be satisfied within three successive academic years.
- Nonnative English speakers must take the SPEAK test (<https://english.wisc.edu/esl/speak.htm>) and receive a score of 50 or higher (or take a comparable test as mentioned in "admissions requirements" above).

### PREREQUISITE COURSES (CAN BE TAKEN AT ANY TIME)

Code	Title	Credits
<i>Foundational Courses</i>		
ENGL 314	Structure of English	3
ENGL 315	English Phonology	3
ENGL 318	Second Language Acquisition	3
<i>Courses on Social Perspectives on English</i>		
Select one of the following:		3
ENGL 316	English Language Variation in the U.S.	
ENGL 414	Global Spread of English (not currently offered)	
ENGL 416	English in Society	
ENGL/GEN&WS 419	Gender and Language (not currently offered)	
Total Credits		12

### REQUIRED TESOL GRADUATE CERTIFICATE COURSES

Code	Title	Credits
Must be taken for graduate credit		
<i>TESOL Foundation Course</i>		
ENGL 415	Introduction to TESOL Methods	3
<i>Courses on Second Language Teaching</i>		
ENGL 515	Techniques and Materials for TESOL	3
Select three of the following:		3
ENGL 613	TESOL: Pedagogical Grammar I	
ENGL 614	TESOL: Pedagogical Grammar II	
ENGL 615	TESOL: Teaching Listening and Speaking	
ENGL 616	TESOL: Teaching of Reading	
ENGL 617	TESOL: Teaching of Writing	
ENGL 618	TESOL: Teaching Pronunciation	
Total Credits		9

## ADMISSIONS

### Admission Requirements

Download the Graduate TESOL application (<https://english.wisc.edu/esl/documents/Graduate.TESOL.Application.Aug.2014.pdf>)

- Student Status. Enrollment in any one of the required certificate courses along with enrollment in a graduate degree program at UW–Madison.
- Foreign Language. Satisfactorily complete at least four college-level terms (or the equivalent, such as four years in high school) of a

modern foreign language, including its spoken form. For nonnative English speakers, English is considered the foreign language.

- Demonstrate English proficiency of spoken and written English commensurate with the role of language model. Nonnative English speakers must have a score of at least:
  - 50 on the SPEAK test (<https://english.wisc.edu/esl/speak.htm>) **or**
  - 26 on the iBt speaking section, with an overall score of 100 on the iBt **or**
  - 600 on the paper version of TOEFL **or**
  - 7 on IELTS (<https://english.wisc.edu/esl/ielts-toefl.htm>).

# ENTOMOLOGY

**Administrative Unit:** Entomology

**College/School:** College of Agricultural and Life Sciences

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The department is a diverse unit of researchers whose work spans the areas of suborganismal, organismal, and applied entomology. Research programs of the faculty are broadly interdisciplinary employing cutting edge technology in all areas. Individual faculty web pages provide in-depth descriptions of the diversity of research in entomology.

Suborganismal research in the department focuses on insect physiology and population genetics. Areas of specialization include the molecular action of insect hormones and the insect/microbiome interface. Studies of gene flow utilize various molecular methods. Genomic data are used to understand adaptation, gene flow on landscapes, the genetic basis of phenotypes, and the phylogenetic relationships of insect species.

Organismal: Entomology faculty members are leaders in the areas of basic ecology of insects in a variety of natural and managed systems, such as forests, lakes and agroecosystems. Studies in taxonomy, chemical ecology, spatial analysis, vector biology, behavioral ecology, and landscape ecology have strong representation in the department. Research examines how they affect crops and forests, influence ecosystem processes such as nutrient and carbon cycling and the "services" they provide in natural and managed ecosystems such as pollination and pest suppression.

Applied/Extension: Faculty in the department extend a long tradition of research on insects as they impact humans. Excellence in agricultural research continues in vegetable crops, field and forage crops and the turf and ornamental "green industry" where work has continued to advance the application of integrated pest management in agricultural systems. Basic research conducted by faculty in cropping systems also has implications for pest management, conservation, bioenergy, resource management. This research extends to global health issues focusing on arthropod borne diseases and insects as a novel food source.

Research in the department explores the interconnections across scales of biological organization, from molecular and cellular interactions to ecosystem-level studies, in both managed and natural systems, and from basic to applied research. Faculty members collaborate with colleagues in other departments in the College of Agricultural and Life Sciences, and beyond the college and university.

Graduate education in the Department of Entomology provides many opportunities for collaborative research. Faculty members participate in joint instructional programs with other departments on campus and with scientists at other universities, in federal and state agencies, and in industry. Because several entomology faculty members are also adjunct professors in zoology, forest and wildlife ecology, molecular and environmental toxicology, and other departments, they may serve as primary advisers to graduate students majoring in those fields. Opportunities exist to conduct research in a variety of distant tropical and temperate regions, to gain experience in classroom instruction and individual mentoring, and to participate in outreach activities such as addressing K–12 classes, naturalist groups, and commodity producers.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Entomology, Doctoral Minor (p. 296)
- Entomology, M.S. (p. 296)
- Entomology, Ph.D. (p. 298)

## PEOPLE

**Faculty:** Professors Paskewitz (chair), Goodman, Gratton, Hogg, Ives, Lindroth, Raffa, Townsend, Williamson, Young, Zhu; Associate Professors Brunet, Currie, Groves; Assistant Professors Bartholomay, Guédot, Smith, Schoville, Steffan

## ENTOMOLOGY, DOCTORAL MINOR

## ENTOMOLOGY, M.S.

The department is a diverse unit of researchers whose work spans the areas of suborganismal, organismal, and applied entomology. Research programs of the faculty are broadly interdisciplinary employing cutting edge technology in all areas. Individual faculty web pages provide in-depth descriptions of the diversity of research in entomology.

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Applied/Extension: Faculty in the department extend a long tradition of research on insects as they impact humans. Excellence in agricultural research continues in vegetable crops, field and forage crops and the turf and ornamental "green industry" where work has continued to advance the application of integrated pest management in agricultural systems. Basic research conducted by faculty in cropping systems also has implications for pest management, conservation, bioenergy, resource management. This research extends to global health issues focusing on arthropod borne diseases and insects as a novel food source.

Research in the department explores the interconnections across scales of biological organization, from molecular and cellular interactions to ecosystem-level studies, in both managed and natural systems, and from basic to applied research. Faculty members collaborate with colleagues



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## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

In addition to needing to complete a total of 30 credits, at least 15 of the credits must be taken in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

With Advisory Committee and Academic Affairs Committee approval, students are allowed to count no more than 14 credits of graduate course work from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNDERGRADUATE

With Advisory Committee and Academic Affairs Committee approval, the student may apply up to 7 credits numbered 300 or above completed at UW–Madison toward fulfillment of minimum degree requirements. This work would not be allowed to count toward the Minimum Graduate Coursework (50%) Requirement unless taken at the 700 level or above. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNIVERSITY SPECIAL

With Advisory Committee and Academic Affairs Committee approval, the student may apply up to 15 University Special student credits as fulfillment of the minimum graduate residence or graduate degree credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the Minimum Graduate Coursework (50%) Requirement unless taken at the 700 level or above. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Course requirements are detailed in Entomology's Ph.D. handbook, posted here (<http://www.entomology.wisc.edu/handbooks-forms>).

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all course work (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure they are making satisfactory progress toward a degree, the Graduate School expects that students meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students

completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program's website (<http://labs.russell.wisc.edu/ento/graduate-study/application-process>) for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Develop a broad knowledge base of entomology, inclusive of suborganismal, organismal, and applied entomology.
- Knowledge of laboratory and/or field methodology.
- Recognize relationships between structure and function at appropriate levels- molecular, cellular, organismal or ecological.

### PROFESSIONAL CONDUCT

- Explain and apply scientific methods including designing and conducting experiments and testing hypotheses.

## PEOPLE

**Faculty:** Professors Paskewitz (chair), Goodman, Gratton, Hogg, Ives, Lindroth, Raffa, Townsend, Williamson, Young, Zhu; Associate Professors Brunet, Currie, Groves; Assistant Professors Bartholomay, Guédot, Smith, Schoville, Steffan

## ENTOMOLOGY, PH.D.

The department is a diverse unit of researchers whose work spans the areas of suborganismal, organismal, and applied entomology. Research programs of the faculty are broadly interdisciplinary employing cutting edge technology in all areas. Individual faculty web pages provide in-depth descriptions of the diversity of research in entomology.

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"services" they provide in natural and managed ecosystems such as pollination and pest suppression.

Applied/Extension: Faculty in the department extend a long tradition of research on insects as they impact humans. Excellence in agricultural research continues in vegetable crops, field and forage crops and the turf and ornamental "green industry" where work has continued to advance the application of integrated pest management in agricultural systems. Basic research conducted by faculty in cropping systems also has implications for pest management, conservation, bioenergy, resource management. This research extends to global health issues focusing on arthropod borne diseases and insects as a novel food source.

Research in the department explores the interconnections across scales of biological organization, from molecular and cellular interactions to ecosystem-level studies, in both managed and natural systems, and from basic to applied research. Faculty members collaborate with colleagues in other departments in the College of Agricultural and Life Sciences, and beyond the college and university.

Graduate education in the Department of Entomology provides many opportunities for collaborative research. Faculty members participate in joint instructional programs with other departments on campus and with scientists at other universities, in federal and state agencies, and in industry. Because several entomology faculty members are also adjunct professors in zoology, forest and wildlife ecology, molecular and environmental toxicology, and other departments, they may serve as primary advisers to graduate students majoring in those fields. Opportunities exist to conduct research in a variety of distant tropical and temperate regions, to gain experience in classroom instruction and individual mentoring, and to participate in outreach activities such as addressing K-12 classes, naturalist groups, and commodity producers.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

In addition to needing to complete a total of 51 credits, at least 26 of the credits must be taken in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

With Advisory Committee and Academic Affairs Committee approval, students may count credits of coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNDERGRADUATE

With Advisory Committee and Academic Affairs Committee approval, the student may apply up to 7 credits numbered 300 or above completed at UW-Madison toward fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the Minimum Graduate Coursework (50%) Requirement unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNIVERSITY SPECIAL

With payment of the difference in tuition (between University Special and graduate tuition) and with Advisory Committee and Academic Affairs Committee approval, the student may apply up to 15 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW-Madison coursework taken as a University Special student would not be allowed to count toward the Minimum Graduate Coursework (50%) Requirement unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Course requirements are detailed in Entomology's Ph.D. handbook, posted here (<http://www.entomology.wisc.edu/handbooks-forms>).

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all course work (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure they are making satisfactory progress toward a degree, the Graduate School expects that students meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program's website (<http://labs.russell.wisc.edu/ento/graduate-study/application-process>) for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Develop a broad knowledge base of entomology, inclusive of suborganismal, organismal, and applied entomology.
- Develop state-of-the-art research skills and command of the scientific literature.

- Integrate research discoveries with prior knowledge to demonstrate expertise in entomological science.
- Advance our current knowledge of entomology and related fields.

## PROFESSIONAL CONDUCT

- Demonstrate critical thinking skills in defining problems, assembling facts, and applying logic to scientific arguments.
- Demonstrate excellent written and oral communication skills.

## PEOPLE

**Faculty:** Professors Paskewitz (chair), Goodman, Gratton, Hogg, Ives, Lindroth, Raffa, Townsend, Williamson, Young, Zhu; Associate Professors Brunet, Currie, Groves; Assistant Professors Bartholomay, Guédot, Smith, Schoville, Steffan

## FINANCE

**Administrative Unit:** Finance

**College/School:** School of Business

**Admitting Plans:** M.S., MBA

**Degrees Offered:** MBA, M.S.

**Named Options:** Applied Security Analysis (MBA); Corporate Finance and Investment Banking (MBA)

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Business: Finance, Investment, and Banking, M.S. (p. 301)
- Business: Finance, Investment, and Banking, MBA (p. 303)

## PEOPLE

**Faculty:** Professors Ready (chair), Brown, Corbae, Johannes, Krainer, Mello, Ready, Wright; Associate Professors Eraker, Fedenia, Odders-White, Seward; Assistant Professors Chang, Gofman, Levine, Robotto, Wu

## BUSINESS: FINANCE, INVESTMENT, AND BANKING, M.S.

The M.S. degree in the School of Business is currently designed for students who wish to pursue specialized studies within one of two specific fields: global real estate (in the business: real estate and urban land economics M.S.) and finance (within the business: finance, investment and banking M.S.). With previous undergraduate exposure to the functional areas of business, students gain a more extensive focus in one of these two specific areas of business.

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School

of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available named option in Quantitative Finance

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits of graduate coursework from other institutions is allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Up to 6 credits from courses numbered 300 or above will be allowed to apply toward the minimum graduate degree credit requirement. Courses numbered 700 or above will be allowed to apply toward the minimum graduate coursework requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No credits from the UW–Madison University Special student career are allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission consideration requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. Work experience is not required. Applicants should have an undergraduate minimum grade point average (GPA) of 3.0 or higher on a 4.0 scale. In addition to academic credentials, test scores, personal achievements, motivation, communication skills (written and oral) and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT) or the Graduate Record Exam (GRE), taken within five years of the starting term, is required of all applicants to the Ph.D. and M.S. Programs. Also, all domestic (including Puerto Rico) and international applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL). A recommended minimum TOEFL score of 106 (New iBT), obtained within two years of the intended starting term, is needed for admission consideration. International

applicants who have completed a four-year bachelor's degree in a country where the official language is English may request a waiver of the TOEFL requirement. A master's degree from an English-speaking institution does not qualify for a waiver of the TOEFL. The school accepts IELTS and Pearson Test of English as substitutes for TOEFL.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will develop the ability to assess the value of publicly traded equity and fixed income securities (Applied Securities Analysis Program)
- Students will articulate the common causes of mispriced securities, develop techniques to find these securities, and acquire insight as to how to evaluate the success of their process and decisions (Applied Securities Analysis Program)
- Students will develop the ability to build portfolios that are designed to produce consistent positive returns and/or outperform benchmarks without taking on significant absolute or incremental risk (Applied Securities Analysis Program)
- Students will be able to design financial strategies for non-financial firms, including raising capital, the choice and mix of securities, refinancing, as well as various forms of returning capital to different investors (Corporate Finance and Investment Banking)
- Students will assess the value of publicly traded and privately held equity and fixed income securities (Corporate Finance and Investment Banking)
- Students will analyze business decisions utilizing multinational finance techniques (Corporate Finance and Investment Banking)

### PROFESSIONAL CONDUCT

- Students will develop the ability to communicate and collaborate effectively within an organization (Applied Securities Analysis Program)
- Students will understand the importance of ethical behavior within the investment industry and have an understanding of how to work through ethical dilemmas as they arise (Applied Securities Analysis Program)

### ADDITIONAL LEARNING GOALS

- Students will be able to perform the role and functions of investment bankers, such as underwriting of securities, advising on mergers and acquisitions, divestitures, corporate restructuring (Corporate Finance and Investment Banking)
- Students will be able to execute private equity and venture financing of high potential companies (Corporate Finance and Investment Banking)
- Students will apply their knowledge and skills by providing financial consulting services to national companies (Corporate Finance and Investment Banking)

## PEOPLE

**Faculty:** Professors Ready (chair), Brown, Corbae, Johannes, Krainer, Mello, Ready, Wright; Associate Professors Eraker, Fedenia, Odders-White, Seward; Assistant Professors Chang, Gofman, Levine, Robotto, Wu

## BUSINESS: FINANCE, INVESTMENT, AND BANKING, MBA

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

### NAMED OPTION IN APPLIED SECURITY ANALYSIS

The applied security analysis program (ASAP) at the School of Business was founded in 1970 by Professor Stephen L. Hawk. Approximately 500 students have graduated from the program. Each graduate enters the investment community with the unique educational experience of learning the investment business through hands-on management of real portfolios. Beginning with \$100,000 in 1970, students now manage over \$50 million in equities and fixed-income assets. The program is proud to be a pioneer among student-managed investment programs and a CFA® Program Partner. See the program website (<http://beta.bus.wisc.edu/programs/mba-programs/full-time-mba/career-specializations/applied-security-analysis>) for more information.

### NAMED OPTION IN CORPORATE FINANCE AND INVESTMENT BANKING

The Nicholas MBA program offers students a unique opportunity to gain practical experience working on meaningful corporate finance consulting engagements. Students work in teams on assigned finance projects for consulting firms, investment banks, public corporations, and private companies. The financial consulting engagements typically involve an analysis of problem for the engagement sponsors in areas such as working capital management, evaluation of funding sources, valuation, cost of capital, capital expenditure decisions, acquisition analysis, and joint venture and strategic alliances. Throughout the academic year, students work on approximately four to six diverse financial consulting engagements. Overall, each class works with 16–18 different corporations, firms, and banks. See the program website (<http://beta.bus.wisc.edu/programs/mba-programs/full-time-mba/career-specializations/corporate-finance-investment-banking>) for more information.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

MBA, with available named options in Applied Security Analysis, and Corporate Finance and Investment Banking

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits of graduate coursework from other institutions is allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No credits from the UW–Madison University Special student career are allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits<sup>1</sup>

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

<sup>1</sup> Full-time MBA students may be allowed to enroll in up to 18 credits per term in the 2016–2017 academic year. Contact the Wisconsin School of Business for more information.

## ADMISSIONS

Admission consideration for the MBA program requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. The School of Business seeks a minimum of two years of full-time work experience along with a strong undergraduate performance. In addition to academic credentials, GMAT scores and work experience, personal achievements, motivation, communication skills (written and oral), international exposure and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT), taken within five years of the starting term, is required of all applicants to the School of Business; the Graduate Record Exam (GRE) may be an acceptable alternative on a case by case basis. All applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL), the Pearson Test of English (PTE), Intensive English as a Second Language (IELTS), or show completion of an Interlink program. A minimum iBT TOEFL score of 100 or equivalent, obtained within two years of the intended start term, is required. International applicants who have completed a degree at an institution whose primary

language of instruction was English may request a waiver of this requirement on the application.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will develop the ability to assess the value of publicly traded equity and fixed income securities (Applied Securities Analysis Program)
- Students will articulate the common causes of mispriced securities, develop techniques to find these securities, and acquire insight as to how to evaluate the success of their process and decisions (Applied Securities Analysis Program)
- Students will develop the ability to build portfolios that are designed to produce consistent positive returns and/or outperform benchmarks without taking on significant absolute or incremental risk (Applied Securities Analysis Program)
- Students will be able to design financial strategies for non-financial firms, including raising capital, the choice and mix of securities, refinancing, as well as various forms of returning capital to different investors (Corporate Finance and Investment Banking)
- Students will assess the value of publicly traded and privately held equity and fixed income securities (Corporate Finance and Investment Banking)
- Students will analyze business decisions utilizing multinational finance techniques (Corporate Finance and Investment Banking)

### PROFESSIONAL CONDUCT

- Students will develop the ability to communicate and collaborate effectively within an organization (Applied Securities Analysis Program)
- Students will understand the importance of ethical behavior within the investment industry and have an understanding of how to work through ethical dilemmas as they arise (Applied Securities Analysis Program)

### ADDITIONAL LEARNING GOALS

- Students will be able to perform the role and functions of investment bankers, such as underwriting of securities, advising on mergers and acquisitions, divestures, corporate restructuring (Corporate Finance and Investment Banking)
- Students will be able to execute private equity and venture financing of high potential companies (Corporate Finance and Investment Banking)
- Students will apply their knowledge and skills by providing financial consulting services to national companies (Corporate Finance and Investment Banking)

## PEOPLE

**Faculty:** Professors Ready (chair), Brown, Corbae, Johannes, Krainer, Mello, Ready, Wright; Associate Professors Eraker, Fedenia, Odders-White, Seward; Assistant Professors Chang, Gofman, Levine, Robotto, Wu



## FOOD SCIENCE

**Administrative Unit:** Food Science

**College/School:** College of Agricultural and Life Sciences

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The graduate program in the Department of Food Science ranks among the best of its kind in the United States. Strong faculty research groups exist in food chemistry, food engineering, food microbiology, and food safety. Master's and Ph.D. tracks in these areas combine an array of in-depth courses with the use of advanced research methods for studying food properties: chemical, physical, physiological, and bioactive characteristics; material properties; microbial control and safety; sensory quality; procedures for the processing, storage, and preservation of foods.

Research areas in which the department has special expertise include: chemical attributes of proteins, enzymes, lipids, flavors, bioactive components, and pigments; processes for crystallizing, separating, freezing, and drying; food safety (detection, control, and mechanistic action of pathogenic microorganisms, and undesirable chemicals in food); process optimization and validation of critical processing limits. Commodity foci include: dairy products, confectionery products, fruits and vegetables, muscle foods, and fermented products.

The department occupies Babcock Hall, a modern building with excellent facilities for instruction and research. Availability of appropriate instruments, equipment, and pilot-plant facilities enables research on the above topics to be conducted in a manner that has impact worldwide.

About 40–50 students from many countries are currently pursuing M.S. and Ph.D. degrees in the areas mentioned above. This includes some graduate students working in programs associated with the Food Research Institute.

Individuals obtaining advanced degrees in food science will find employment opportunities in academic instruction and research, government research or regulatory programs, and industrial research, development, or quality assurance. Historically, the department's placement record for graduating students has been very good.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Food Science, Doctoral Minor (p. 305)
- Food Science, M.S. (p. 305)
- Food Science, Ph.D. (p. 307)

### PEOPLE

**Faculty:** Professors Damodaran, Etzel, Hartel, Ingham, Lucey, Parkin, Rankin (chair), Steele; Assistant Professors Bolling, Ikeda, van Pijkeren

## FOOD SCIENCE, DOCTORAL MINOR

### REQUIREMENTS

To qualify for a doctoral minor in food science, a student must satisfactorily complete in the Department of Food Science: 1 credit of FOOD SCI 900 Seminar Advanced (graded) and 10 additional credits as specified by the minor professor (who must have a tenure home in food science). Of these 10 credits, no more than 4 credits at the 300–499 level are acceptable and the remaining credits must be at the 500 level or above. The specified coursework requirements must be prepared using the PhD Minor Agreement Form. The original signed copy must be transmitted to the Graduate School office at the time the student requests the preliminary exam warrant (see Department of Food Science office staff about four weeks prior to exam date).

### PEOPLE

**Faculty:** Professors Damodaran, Etzel, Hartel, Ingham, Lucey, Parkin, Rankin (chair), Steele; Assistant Professors Bolling, Ikeda, van Pijkeren

## FOOD SCIENCE, M.S.

The graduate program in the Department of Food Science ranks among the best of its kind in the United States. Strong faculty research groups exist in food chemistry, food engineering, food microbiology, and food safety. Master's and Ph.D. tracks in these areas combine an array of in-depth courses with the use of advanced research methods for studying food properties: chemical, physical, physiological, and bioactive characteristics; material properties; microbial control and safety; sensory quality; procedures for the processing, storage, and preservation of foods.

Research areas in which the department has special expertise include: chemical attributes of proteins, enzymes, lipids, flavors, bioactive components, and pigments; processes for crystallizing, separating, freezing, and drying; food safety (detection, control, and mechanistic action of pathogenic microorganisms, and undesirable chemicals in food); process optimization and validation of critical processing limits. Commodity foci include: dairy products, confectionery products, fruits and vegetables, muscle foods, and fermented products.

The department occupies Babcock Hall, a modern building with excellent facilities for instruction and research. Availability of appropriate instruments, equipment, and pilot-plant facilities enables research on the above topics to be conducted in a manner that has impact worldwide.

About 40–50 students from many countries are currently pursuing M.S. and Ph.D. degrees in the areas mentioned above. This includes some graduate students working in programs associated with the Food Research Institute.

Individuals obtaining advanced degrees in food science will find employment opportunities in academic instruction and research, government research or regulatory programs, and industrial research, development, or quality assurance. Historically, the department's placement record for graduating students has been very good.

## FUNDING

Financial assistance is available to qualified individuals in the form of research assistantships, teaching assistantships, or fellowships. These are awarded on a competitive basis and renewed annually pending satisfactory progress, with most research assistantships offered entirely by individual faculty linked to specific research grants. The terms of these appointments are initially defined in the letter of offer to the student.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of the certified\* degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Prior graduate-level coursework from other institutions may not count toward minimum credit requirements for the major, but may satisfy specific food science course requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Prior coursework as a UW-Madison undergraduate student may not count toward minimum credit requirements for the major, but may satisfy specific food science course requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Prior coursework taken as a University Special student may not count toward minimum credit requirements for the major, but may satisfy specific food science course requirements.

### CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES/CREDITS REQUIRED

Code	Title	Credits
FOOD SCI 410	Food Chemistry	3
FOOD SCI 432	Principles of Food Preservation	3
FOOD SCI/ MICROBIO 325	Food Microbiology	3
Select one Statistics course		
FOOD SCI 900	Seminar Advanced	1
FOOD SCI 990	Research	1-12
Select 4 credits of graduate level (600, 610-679, 700 and above) Food Sci or closely related courses		
Select a minimum of 8 graduate degree credits		

Certified coursework is a specified plan of courses unique to each student that must be completed to satisfy the requirements for their graduate program. This plan is approved by the student's graduate program advisory committee (GPAC) and is stipulated in the document *Certification of Coursework in Food Science*. Courses students take beyond the "certified" coursework plan are not included in calculating graduate coursework requirements.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of incomplete (I) are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

Candidates not making satisfactory progress will be placed on probation. If this probationary status is not resolved by the end of the semester in which it is initiated, the candidate may be dismissed by their faculty advisor.

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member or affiliate faculty member from the major department responsible for providing advice regarding graduate studies. The student's graduate program advisory committee (GPAC) also is involved in advising of the student in various stages of their studies to monitor and ensure they are making satisfactory progress toward a degree.

### ASSESSMENT AND EXAMINATIONS

Requirements determined by the program. Students are required to have a graduate program advisory committee (GPAC) meeting once each year to monitor progress toward their degree.

Master's students are required to defend their thesis after they have cleared their record of all Incomplete and Progress grades (other than research and thesis) and deposit the final thesis to the Memorial Library.

## TIME CONSTRAINTS

It is expected that students will complete all degree requirements in two to three years.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Food Science does not have a foreign language requirement.

## ADMISSIONS

Students who are admitted to the program must meet the Graduate School minimum requirements, including completion of a bachelor's degree which typically consists of a satisfactory undergraduate education in fields such as food science, dairy science, chemistry, most biological sciences (e.g., biochemistry, microbiology, nutrition), and engineering (especially chemical and agricultural). To enter either program, students must have taken at least one course in biochemistry and one course in organic chemistry. Students with a master's degree are eligible to apply for the Ph.D. program. Students without a master's degree are not eligible to enter the Ph.D. program, and must first apply to the M.S. program.

A decision on eligibility for admission is made by an individual faculty members based on the review of the applicant's academic record, scores on TOEFL (for international students) and Graduate Record Exams (GRE), letters of reference, supplemental application and personal statement (reasons for graduate study), and available funding/space in research labs. Students interested in applying for the food science program should look closely at the website ([http://www.foodsci.wisc.edu/grad\\_apply.php](http://www.foodsci.wisc.edu/grad_apply.php)) for specific information about the admissions process.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

### KNOWLEDGE

- Understands, articulates, critiques and elaborates core paradigms in Food Science.

## PROFESSIONAL CONDUCT

- Recognizes that life-long learning is critical for continued personal and professional development.
- Complies with principles of ethical and professional conduct.

## ADDITIONAL LEARNING GOALS

### RESEARCH

- Sources and assembles evidence to address questions or identify gaps in knowledge in the field of food science.
- Evaluates and synthesizes information to address technical challenges.

- Selects research methods and practices appropriate to discovery activities.
- Creates knowledge that contributes to the field of food science.

## PROFESSIONAL SKILLS

- Clearly and effectively communicates technical information in oral and written formats.
- Works effectively within a team.

## PEOPLE

**Faculty:** Professors Damodaran, Etzel, Hartel, Ingham, Lucey, Parkin, Rankin (chair), Steele; Assistant Professors Bolling, Ikeda, van Pijkeren

## FOOD SCIENCE, PH.D.

The graduate program in the Department of Food Science ranks among the best of its kind in the United States. Strong faculty research groups exist in food chemistry, food engineering, food microbiology, and food safety. Master's and Ph.D. tracks in these areas combine an array of in-depth courses with the use of advanced research methods for studying food properties: chemical, physical, physiological, and bioactive characteristics; material properties; microbial control and safety; sensory quality; procedures for the processing, storage, and preservation of foods.

Research areas in which the department has special expertise include: chemical attributes of proteins, enzymes, lipids, flavors, bioactive components, and pigments; processes for crystallizing, separating, freezing, and drying; food safety (detection, control, and mechanistic action of pathogenic microorganisms, and undesirable chemicals in food); process optimization and validation of critical processing limits. Commodity foci include: dairy products, confectionery products, fruits and vegetables, muscle foods, and fermented products. The department occupies Babcock Hall, a modern building with excellent facilities for instruction and research. Availability of appropriate instruments, equipment, and pilot-plant facilities enables research on the above topics to be conducted in a manner that has impact worldwide.

About 40–50 students from many countries are currently pursuing M.S. and Ph.D. degrees in the areas mentioned above. This includes some graduate students working in programs associated with the Food Research Institute.

Individuals obtaining advanced degrees in food science will find employment opportunities in academic instruction and research, government research or regulatory programs, and industrial research, development, or quality assurance. Historically, the department's placement record for graduating students has been very good.

## FUNDING

Financial assistance is available to qualified individuals in the form of research assistantships, teaching assistantships, or fellowships. These are awarded on a competitive basis and renewed annually pending satisfactory progress, with most research assistantships offered entirely by individual faculty linked to specific research grants. The terms of these appointments are initially defined in the letter of offer to the student.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of the certified\* degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENT: GRADUATE WORK FROM OTHER INSTITUTIONS

Prior graduate-level coursework from other institutions may not count toward minimum credit requirements for the major, but may satisfy specific food science course requirements. No more than 6 credits from prior graduate level coursework may be applied toward fulfillment of the distributed minor requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Prior coursework as a UW-Madison undergraduate student may not count toward minimum credit requirements for the major, but may satisfy specific food science course requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Prior coursework taken as a University Special student may not count toward minimum credit requirements for the major, but may satisfy specific food science course requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES/CREDITS REQUIRED

Code	Title	Credits
FOOD SCI 410	Food Chemistry	3
FOOD SCI 432	Principles of Food Preservation	3
FOOD SCI/ MICROBIO 325	Food Microbiology	3

Select one Statistics course

Select one of the following:

FOOD SCI 799	Practicum in Food Science Teaching	
	TA position and teaching/learning training course	
FOOD SCI 900	Seminar Advanced <sup>1</sup>	1

Select 8 credits of graduate-level (600, 610-679, 700 and above) Food Sci or closely related courses

<sup>1</sup> Two graded graduate seminars are required.

Certified coursework is a specified plan of courses unique to each student that must be completed to satisfy the requirements for their graduate program. This plan is approved by the student's graduate program advisory committee (GPAC) and is stipulated in the document *Certification of Coursework in Food Science*. Courses students take beyond the "certified" coursework plan are not included in calculating graduate coursework requirements.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

The Graduate School requires doctoral programs to have a doctoral minor requirement to achieve breadth. Ph.D. candidates in food science must complete the requirements for an Option A minor (all coursework within a single department) or Option B (distributed) minor (related courses from more than one department). Option A minor: credit requirements are set by the host department where the courses are taken. Option B (distributed) minor: 10 credits (courses numbered 500 or above) are required and approved by the student's graduate program advisory committee (GPAC).

Minor coursework must be completed before, or by end of, the semester in which the prelim is taken.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of incomplete (I) are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

Candidates not making satisfactory progress will be placed on probation. If this probationary status is not resolved by the end of the semester in which it is initiated, the candidate may be dismissed by their faculty advisor.

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR/COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member or affiliate faculty member

from the major department responsible for providing advice regarding graduate studies. The student's graduate program advisory committee (GPAC) also is involved in advising of the student in various stages of their studies to monitor and ensure they are making satisfactory progress toward a degree.

## ASSESSMENT AND EXAMINATIONS

Students are required to have a graduate program advisory committee (GPAC) meeting once each year to monitor progress toward their degree.

Doctoral students are required to take a preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis).

Defense and deposit of the doctoral dissertation in the Graduate School is required.

Additional requirements determined by the department:

The preliminary exam cannot be scheduled until 39 residence credits are completed as well as ALL certified coursework except for FOOD SCI 990 Research and 1 credit of graded FOOD SCI 900 Seminar Advanced (student gives a seminar presentation and class is taken for a grade).

## TIME CONSTRAINTS

It is expected that students will complete all degree requirements in five years.

Dissertators cannot schedule their dissertation defense sooner than six months after the actual date of passing the preliminary examination.

A candidate for a doctoral degree who fails to take the final oral examination (thesis defense) and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Food Science does not have a foreign language requirement.

## ADMISSIONS

Students who are admitted to the program must meet the Graduate School minimum requirements, including completion of a bachelor's degree which typically consists of a satisfactory undergraduate education in fields such as food science, dairy science, chemistry, most biological sciences (e.g., biochemistry, microbiology, nutrition), and engineering (especially chemical and agricultural). To enter either program, students must have taken at least one course in biochemistry and one course in organic chemistry. Students with a master's degree are eligible to apply for the Ph.D. program. Students without a master's degree are not eligible to enter the Ph.D. program, and must first apply to the M.S. program.

A decision on eligibility for admission is made by an individual faculty members based on the review of the applicant's academic record, scores on TOEFL (for international students) and Graduate Record Exams (GRE),

letters of reference, supplemental application and personal statement (reasons for graduate study), and available funding/space in research labs. Students interested in applying for the food science program should look closely at the website ([http://www.foodsci.wisc.edu/grad\\_apply.php](http://www.foodsci.wisc.edu/grad_apply.php)) for specific information about the admissions process.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### KNOWLEDGE

- Articulates potentials and limits of core paradigms in food science; formulates ideas and extrapolations beyond current boundaries of knowledge.
- Develops breadth through competencies in minor field(s) of study.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

### ADDITIONAL LEARNING GOALS

#### RESEARCH

- Critically evaluates evidence to articulate research questions and develop appropriate research hypotheses.
- Formulates an effective experimental design and develops appropriate methodology to address problems in a systematic manner.
- Creates knowledge that makes a substantive contribution to the field and articulates how society may benefit.
- Professional Skills
- Communicates complex ideas in a succinct and understandable manner to diverse audiences.
- Develops mentoring and teaching skills.

## PEOPLE

**Faculty:** Professors Damodaran, Etzel, Hartel, Ingham, Lucey, Parkin, Rankin (chair), Steele; Assistant Professors Bolling, Ikeda, van Pijkeren

# FOREST AND WILDLIFE ECOLOGY

**Administrative Unit:** Forest and Wildlife Ecology

**College/School:** College of Agricultural and Life Sciences

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S. in Forestry; M.S. in Wildlife Ecology; Ph.D. in Forestry; Ph.D. in Wildlife Ecology

**Minors and Certificates:** Doctoral Minor in Forestry; Doctoral Minor in Wildlife Ecology

The Department of Forest and Wildlife Ecology offers graduate education and training in a number of areas leading to the master of science and/or the doctor of philosophy in forestry or wildlife ecology. The program takes pride in its outstanding research reputation and the success of graduates working throughout the world. The wildlife ecology program was founded by Aldo Leopold in 1939, and has maintained his vision and legacy of excellence in current research and graduate training activities. Leopold's career spanned two professions, forestry and wildlife conservation, so the program strives to maintain excellence in both fields.

## FORESTRY

Master's and doctoral work in forestry is offered in the following areas: forest ecology, silviculture, forest ecosystem analysis and management, landscape ecology and planning, forest stand dynamics, forest restoration ecology, tree physiology, remote sensing of forests and natural resources, natural resource policy, social forestry, forest management, ecosystem services, and economics of forests and natural resources.

## WILDLIFE ECOLOGY

Master's and doctoral work in wildlife ecology typically focus on areas of wildlife ecology that reflect the expertise of the faculty, including but not limited to: behavioral ecology, physiological ecology, population dynamics, wildlife disease, community ecology, landscape ecology, wildlife management, wildlife-habitat linkages, molecular ecology, human dimensions, species distribution modeling, climate change, endangered species recovery, conservation biology, toxicology, and wildlife damage management.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Forestry, Doctoral Minor (p. 310)
- Forestry, M.S. (p. 310)
- Forestry, Ph.D. (p. 311)
- Wildlife Ecology, Doctoral Minor (p. 313)
- Wildlife Ecology, M.S. (p. 313)
- Wildlife Ecology, Ph.D. (p. 315)

## PEOPLE

### FORESTRY

**Faculty:** Professors Rickenbach (chair), Bowe, Clayton, Kruger, Lindroth, Mladenoff, Radeloff, Raffa, Stanosz, Townsend; Associate Professor

Balster, Marin-Spiotta, Ozdogan, Pidgeon, Rissman; Assistant Professors Alix-Garcia, Johnston

### WILDLIFE ECOLOGY

**Faculty:** Professors Rickenbach (chair), Karasov, Radeloff, Ribic, Samuel; Associate Professor Drake, Lutz, Peery, Pidgeon, Van Deelen; Assistant Professors Pauli, Zuckerberg

## FORESTRY, DOCTORAL MINOR

## FORESTRY, M.S.

The Department of Forest and Wildlife Ecology offers graduate education and training in a number of areas leading to the master of science and/or the doctor of philosophy in forestry or wildlife ecology. The program takes pride in its outstanding research reputation and the success of graduates working throughout the world. The wildlife ecology program was founded by Aldo Leopold in 1939, and has maintained his vision and legacy of excellence in current research and graduate training activities. Leopold's career spanned two professions, forestry and wildlife conservation, so the program strives to maintain excellence in both fields.

Master's and doctoral work in forestry is offered in the following areas: forest ecology, silviculture, forest ecosystem analysis and management, landscape ecology and planning, forest stand dynamics, forest restoration ecology, tree physiology, remote sensing of forests and natural resources, natural resource policy, social forestry, forest management, ecosystem services, and economics of forests and natural resources.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With M.S. committee approval and academic affairs committee approval, students are allowed to count no more than 14 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Students may count up to 7 credits of coursework numbered 300 level or above upon approval of the M.S. committee and the academic affairs committee. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With M.S. committee approval and academic affairs committee approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The equivalent of a bachelor's degree in forestry, wildlife ecology, or a related field is required for admission with full standing to pursue graduate studies in the Department of Forest and Wildlife Ecology. Students with undergraduate work in other fields may be admitted with deficiencies; these deficiencies must be removed during the first year of graduate study. Academic requirements for admission are those of the Graduate School and the Department of Forest and Wildlife Ecology; Graduate Record Exam (GRE) scores are required.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Articulates, critiques, and elaborates the theories, research methods, and approaches to inquiry in the field of forest science.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of forest science.
- Demonstrates understanding of the field of forest science in a historical, social, and global context.
- Evaluates and synthesizes information pertaining to questions or challenges in the field of forest science.

## PROFESSIONAL CONDUCT

- Selects and utilizes the most appropriate methodologies and practices.
- Communicates clearly in ways appropriate to the field of forest science.

## PEOPLE

**Faculty:** Professors Rickenbach (chair), Bowe, Clayton, Kruger, Lindroth, Mladenoff, Radeloff, Raffa, Stanosz, Townsend; Associate Professor Balster, Marin-Spiotta, Ozdogan, Pidgeon, Rissman; Assistant Professors Alix-Garcia, Johnston

## FORESTRY, PH.D.

The Department of Forest and Wildlife Ecology offers graduate education and training in a number of areas leading to the master of science and/or the doctor of philosophy in forestry or wildlife ecology. The program takes pride in its outstanding research reputation and the success of graduates

working throughout the world. The wildlife ecology program was founded by Aldo Leopold in 1939, and has maintained his vision and legacy of excellence in current research and graduate training activities. Leopold's career spanned two professions, forestry and wildlife conservation, so the program strives to maintain excellence in both fields.

Master's and doctoral work in forestry is offered in the following areas: forest ecology, silviculture, forest ecosystem analysis and management, landscape ecology and planning, forest stand dynamics, forest restoration ecology, tree physiology, remote sensing of forests and natural resources, natural resource policy, social forestry, forest management, ecosystem services, and economics of forests and natural resources.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept prior graduate coursework from other institutions toward the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison toward fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

The program may decide to accept up to 15 UW–Madison Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis).

UW–Madison coursework taken as a Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.



A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The equivalent of a bachelor's degree in forestry, wildlife ecology, or a related field is required for admission with full standing to pursue graduate studies in the Department of Forest and Wildlife Ecology. Students with undergraduate work in other fields may be admitted with deficiencies; these deficiencies must be removed during the first year of graduate study. Academic requirements for admission are those of the Graduate School and the Department of Forest and Wildlife Ecology; Graduate Record Exam (GRE) scores are required.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of forest science.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of forest science.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of forest science to society.

### PROFESSIONAL CONDUCT

- Creates research and scholarship that makes a substantive contribution.
- Communicates complex ideas in a clear and understandable manner.

## PEOPLE

**Faculty:** Professors Rickenbach (chair), Bowe, Clayton, Kruger, Lindroth, Mladenoff, Radeloff, Raffa, Stanosz, Townsend; Associate Professor Balster, Marin-Spiotta, Ozdogan, Pidgeon, Rissman; Assistant Professors Alix-Garcia, Johnston

## WILDLIFE ECOLOGY, DOCTORAL MINOR

Wildlife ecology involves the use of scientific methods to understand how the environment influences wildlife and their populations, as well as the application of ecological research to the management and conservation of wildlife. Wildlife science makes use of a broad range of disciplines including ecology, organismal biology, ecosystem science, genetics, physiology, evolution, and quantitative methods. Wildlife doctoral minors are expected to have a general understanding of wildlife natural history, the ecology of their populations, basic research methods for studying wildlife, and current problems in wildlife management and conservation.

## REQUIREMENTS

Nine (9) credits of wildlife ecology coursework, 300-level courses or higher.

## ADMISSIONS

Zach Peery

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Department of Forest and Wildlife Ecology

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## WILDLIFE ECOLOGY, M.S.

The Department of Forest and Wildlife Ecology offers graduate education and training in a number of areas leading to the master of science and/or the doctor of philosophy degree in wildlife ecology. The department takes pride in its program's outstanding research reputation and the success of graduates working throughout the world. The wildlife ecology program was founded by Aldo Leopold in 1939, and the program has maintained his vision and legacy of excellence in our current research and graduate training activities.

Master's and doctoral work in wildlife ecology typically focus on areas of wildlife ecology that reflect the expertise of the faculty, including but not limited to: behavioral ecology, physiological ecology, population dynamics, wildlife disease, community ecology, landscape ecology, wildlife management, wildlife-habitat linkages, molecular ecology, human dimensions, species distribution modeling, climate change, endangered species recovery, conservation biology, toxicology, and wildlife damage management.

The department is home to the U.S. Geological Survey, Wisconsin Cooperative Wildlife Research Unit. In this program, research in support of state and federal wildlife conservation programs are given priority.

In recent years, annual research support for the department's programs has averaged between three to four million dollars drawn from an array of federal, state, and conservation organizations and private donors.

Competition for admission is very strong and not every admissible student can or will be offered financial support. Graduate assistantships and/or fellowships may be available for a limited number of well-qualified students. Before submitting an application for admission, interested students should contact individual faculty to determine whether an assistantship or other financial aid might be available. Once admitted, students work closely with major professors and an advisory committee to develop a research program.

## FUNDING

Students making satisfactory progress are normally provided with assistantships or fellowships for the typical duration of a graduate program (usually fewer than six academic semesters and three summer sessions for the M.S. degree, and fewer than eight academic semesters and four summer sessions for the Ph.D. degree). Details of funding will be established before the first semester.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

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### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be with courses designed for graduate work. Graduate work may include UW–Madison courses that are numbered 700 and above, or courses outside of wildlife ecology that have been identified by the subject owner as graduate level.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

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Students may count up to 7 credits of coursework numbered 300 or above upon approval of the M.S. committee and the Academic Affairs

Committee. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With M.S. or Ph.D. committee approval and Academic Affairs Committee approval and payment of the difference in tuition (between Special and graduate tuition), students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

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### ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

### TIME CONSTRAINTS

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## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

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## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, and elaborates the theories, research methods, and approaches to inquiry and practice in the field of wildlife ecology and natural resource management.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of wildlife ecology and natural resource management.
- Demonstrates understanding of the field of wildlife ecology and natural resource management in a historical, social, and global context.
- Evaluates and synthesizes information pertaining to questions or challenges in the field of wildlife ecology and natural resource management.
- Communicates clearly in ways appropriate to the field of wildlife ecology and natural resource management.

### PROFESSIONAL CONDUCT

- Selects and utilizes the most appropriate methodologies and practices.

## PEOPLE

**Faculty:** Professors Rickenbach (chair), Karasov, Radeloff, Ribic, Samuel; Associate Professor Drake, Lutz, Peery, Pidgeon, Van Deelen; Assistant Professors Pauli, Zuckerberg

## WILDLIFE ECOLOGY, PH.D.

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wildlife management, wildlife-habitat linkages, molecular ecology, human dimensions, species distribution modeling, climate change, endangered species recovery, conservation biology, toxicology, and wildlife damage management.

The department is home to the U.S. Geological Survey, Wisconsin Cooperative Wildlife Research Unit. In this program, research in support of state and federal wildlife conservation programs are given priority.

In recent years, annual research support for the department's programs has averaged between three to four million dollars drawn from an array of federal, state, and conservation organizations and private donors. Competition for admission is very strong and not every admissible student can or will be offered financial support. Graduate assistantships and/or fellowships may be available for a limited number of well-qualified students. Before submitting an application for admission, interested students should contact individual faculty to determine whether an assistantship or other financial aid might be available. Once admitted, students work closely with major professors and an advisory committee to develop a research program.

## FUNDING

Students making satisfactory progress are normally provided with assistantships or fellowships for the typical duration of a graduate program (usually fewer than six academic semesters and three summer sessions for the M.S. degree, and fewer than eight academic semesters and four summer sessions for the Ph.D. degree). Details of funding will be established before the first semester.

## REQUIREMENTS

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### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be with courses designed for graduate work. Graduate work may include UW-Madison courses that are numbered 700 and above, or courses outside of wildlife ecology that have been identified by the subject owner as graduate level.

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For well-prepared advanced students, the program may accept prior graduate coursework from other institutions toward the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison toward fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With payment of the difference in tuition (between University Special and graduate tuition), the program may decide to accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## **CREDITS PER TERM ALLOWED**

15 credits

## **PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

## **DOCTORAL MINOR/BREADTH REQUIREMENTS**

Doctoral students must complete a doctoral minor.

## **OVERALL GRADUATE GPA REQUIREMENT**

3.00

## **OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## **PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## **ADVISOR**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

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A committee often accomplishes advising for the students in the early stages of their studies.

## **ASSESSMENT AND EXAMINATIONS**

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## **TIME CONSTRAINTS**

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A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## **LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

## **ADMISSIONS**

The equivalent of a bachelor's degree in wildlife ecology or a related field is required for admission with full standing to pursue wildlife ecology graduate studies in the Department of Forest and Wildlife Ecology. Students with undergraduate work in other fields may be admitted with deficiencies; these deficiencies must be satisfied prior to graduation. Academic requirements for admission are those of The Graduate School and the Department of Forest and Wildlife Ecology; Graduate Record Exam (GRE) scores are required.

## **LEARNING OUTCOMES**

### **KNOWLEDGE AND SKILLS**

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of wildlife ecology and natural resource management.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of wildlife ecology and natural resource management.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of wildlife ecology and natural resource management to society.

- Communicates complex ideas in a clear and understandable manner.

## PROFESSIONAL CONDUCT

- Creates research and scholarship that makes a substantive contribution.

### PEOPLE

**Faculty:** Professors Rickenbach (chair), Karasov, Radeloff, Ribic, Samuel; Associate Professor Drake, Lutz, Peery, Pidgeon, Van Deelen; Assistant Professors Pauli, Zuckerberg

# FRENCH AND ITALIAN

**Administrative Unit:** French and Italian

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., MFS, Ph.D.

**Degrees Offered:** M.A. in French; M.A. in Italian; MFS; Ph.D. in French; Ph.D. in Italian

**Minors and Certificates:** Doctoral Minor in French; Doctoral Minor in Italian

## FRENCH

The M.A. and Ph.D. programs in French offer a first-rate faculty in all the areas of French and Francophone literature and culture. The program emphasizes broad coverage as well as specialization, and is organized so as to take advantage of the quality and range of the faculty. A Wisconsin Ph.D. has the ability to teach not only a very focused topic of research, but also much of the French literary tradition.

The French graduate program offers a wide array of courses and seminars each semester, providing a fairly even distribution across the various literary periods in most academic years. Courses typically meet two or three times a week and are quite broad in focus, generally exploring well-defined periods or genres, while seminars are held once a week for two hours and take up narrower topics in greater depth. Both the offerings and the requirements of the M.A. and Ph.D. programs are designed to give students not only the tools necessary for specialization, but also an excellent knowledge of these extremely rich literary traditions.

Strong emphasis is placed on the practice of the language. French is the usual language of instruction in graduate courses and seminars. The department offers possibilities for international stay through exchange programs and further promotes the use of French through lectures, films, theater, and events at the French House.

The French Ph.D. program has a fine job placement record. Its students' solid foundation in the French and Francophone literary tradition is increasingly rare among North American literature programs, as is the extensive training students receive in language pedagogy.

## ITALIAN

The Italian program offers the master of arts and Ph.D. degrees. In most academic years, a wide array of courses and seminars is offered each semester to provide an even distribution across various literary periods. Courses typically meet two or three times a week and are broad in focus, generally exploring well-defined periods or genres. Seminars are held once a week for two hours and take up narrower topics in greater depth. Typical course offerings over a two- to three-year period cover all centuries of Italian literature and a wide variety of topics, including Italian culture, cinema, civilization, and linguistics. Strong emphasis is placed on the practice of the language; Italian is the usual language of instruction in graduate courses and seminars.

Graduate students gain a solid foundation not only in scholarship and criticism, but also in teaching. Most students have guarantees of support. The standard offer to an incoming teaching assistant provides a guarantee of three or four years of support, depending on whether the student has already done graduate work elsewhere. Study abroad programs and exchange agreements with individual universities provide opportunities for study and research in Italy. For example, the department frequently sends a graduate student to serve for a semester or a year

as house fellow for the study program at the Villa Corsi-Salviati near Florence. In addition the department has exchange and cooperation arrangements with the Università di Siena and the Università di Firenze.

The department offers regular workshops designed to give students an overview of the job market and how to best prepare for it, making its placement record outstanding. As one of the largest Italian programs in North America, the department offers an unparalleled opportunity to study Italian literature, linguistics, and culture.

## FRENCH STUDIES

The master of French studies (MFS) is a professional degree earned in the Professional French Masters Program (PFMP). The PFMP is separate from the graduate program in French and Francophone literature. It is an interdisciplinary program combining advanced graduate-level course work in French language and Francophone culture with concentration-area course work in one of six professional concentration areas: French and business, French and education, French and international education, French and European Union affairs, French and international development, and French and media/arts/cultural production. The PFMP prepares graduate students for careers in business, government, nonprofit organizations, media, advertising, and the arts. All PFMP students do a professional internship, in their field, in a French-speaking country, and present a professional portfolio at the end of their studies.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- French Studies, MFS (p. 318)
- French, Doctoral Minor (p. 320)
- French, M.A. (p. 320)
- French, Ph.D. (p. 322)
- Italian, Doctoral Minor (p. 323)
- Italian, M.A. (p. 323)
- Italian, Ph.D. (p. 325)

## PEOPLE

**French Faculty:** Professors Bousquet (chair), Debaisieux, Goodkin, Langer, Miernowski, Songolo, Tochon and Vila; Associate Professors Armbrrecht, El-Nossery, Willis Allen, and Vatan; Assistant Professors Armstrong, Dima, and Gipson

**Italian Faculty:** Professors Bousquet (chair), Buccini, Livorni, Rumble; Associate Professors Menechella, Phillips-Court; Assistant Professor Todorovic

## FRENCH STUDIES, MFS

The Master of French Studies (MFS) is a professional degree earned in the Professional French Masters Program (PFMP). The PFMP is separate from the graduate program in French and Francophone literature. It is an interdisciplinary program combining advanced graduate-level course work in French language and Francophone culture with concentration-area course work in one of six professional concentration areas: French and business, French and education, French and international education, French and European Union affairs, French and international development, and French and media/arts/cultural production. The

PFMP prepares graduate students for careers in business, government, nonprofit organizations, media, advertising, and the arts. All PFMP students do a professional internship, in their field, in a French-speaking country, and present a professional portfolio at the end of their studies.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

MFS, with available full-time academic track and summer institute track

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Two-thirds of the degree coursework (20 of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Full-time academic track: Students may not count coursework from other institutions.

Summer Institute track: With program approval, MFS students in the Summer Institute are allowed to waive up to 10 credits of their required PFMP credits, to recognize graduate work done at colleges or universities other than UW–Madison, if those courses satisfy program requirements and are 6 taken after the student has begun PFMP coursework.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, University Special students enrolled in the capstone certificate "French Studies" may count up to 12 credits of coursework taken while they are capstone students toward the MFS degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

13 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact program for specific information.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

B or better in FRENCH 615 Grammaire avancee.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR / COMMITTEE

Students will work closely with the PFMP Executive Director.

### ASSESSMENTS AND EXAMINATIONS

Internship and Oral Examination.

### TIME CONSTRAINTS

Students who have allowed a session to "lapse" without enrolling during that session, and without approval to take a leave of absence, must reapply to the program if they desire to continue. See program for more details.

Leaves of absence are viable for one semester only.

### LANGUAGE REQUIREMENTS

No additional language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website (<http://pfmp.wisc.edu/aboutus?q=apply>) for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Speak, read, listen and write in French at a level sufficient to work successfully among native French speakers in the student's concentration area.
- Identify, select and retrieve primary and secondary sources in research projects, using techniques expected by professionals working in the student's concentration area.
- Demonstrate a thorough understanding of the relationship between practices and perspectives in the cultures of the world's major French-speaking regions.

- Articulate, critique, and elaborate the major professional approaches and best practices in the student's concentration area.
- Demonstrate understanding of the student's concentration area in its historical and cultural context.

## PROFESSIONAL CONDUCT

- Successfully apply major professional approaches and best practices to professional projects in a French-speaking organizational setting outside the United States, in the student's concentration area.
- Use the most appropriate methodologies for success when beginning or returning to work in the student's concentration area.

## PEOPLE

French Faculty: Professors Bousquet (chair), Debaisieux, Goodkin, Langer, Miernowski, Songolo, Tochon and Vila; Associate Professors Armbricht, El-Nossery, Willis Allen, and Vatan; Assistant Professors Armstrong, Dima, and Gipson

Italian Faculty: Professors Bousquet (chair), Buccini, Livorni, Rumble; Associate Professors Menechella, Phillips-Court; Assistant Professor Todorovic

PFMP Director Ritt Deitz; other faculty from across campus also teach in the program.

## FRENCH, DOCTORAL MINOR

Our graduate program offers training for teaching and research in all areas of French and Francophone literature and literary history, in critical theory, film, gender and queer studies, romance philology, and foreign language pedagogy.

Learning outcomes:

- Analyze and interpret several theories, research methods, and approaches to inquiry in this discipline
- Demonstrate adequate proficiency in French to lead a well-informed discussion of literature and culture
- Communicate clearly and appropriately in both written and spoken French

## REQUIREMENTS

A student must take a minimum of 9 credits in advanced (300 level and above) French literature, culture, language, and film, taught in French, including at least 3 credits at the 500 level or above. Neither FRENCH 391 French for Reading Knowledge nor FRENCH 365 Topics in French/Francophone Literature and Culture (in translation) nor any other course taught in English may be counted toward the doctoral minor in French.

### Transfer of Credits

Students may be given credit for graduate or advanced undergraduate (300 level or above) courses in French literature taken at other universities, to be determined by the French Instructional Committee. No more than 3 such credits may be transferred.

## ADMISSIONS

To be accepted for graduate work in French toward the doctoral minor, a student should have had the equivalent of not less than four semesters of college French, and be capable of taking courses at the 300 level.

Interested students should consult with the graduate coordinator [ramer@wisc.edu](mailto:ramer@wisc.edu) and have the minor plan approved by the director of graduate studies.

## PEOPLE

French Faculty: Professors Bousquet (chair), Debaisieux, Goodkin, Langer, Miernowski, Songolo, Tochon and Vila; Associate Professors Armbricht, El-Nossery, Willis Allen, and Vatan; Assistant Professors Armstrong, Dima, and Gipson

Italian Faculty: Professors Bousquet (chair), Buccini, Livorni, Rumble; Associate Professors Menechella, Phillips-Court; Assistant Professor Todorovic

## FRENCH, M.A.

The M.A. and Ph.D. programs in French offer a first-rate faculty in all the areas of French and Francophone literature and culture. The program emphasizes broad coverage as well as specialization, and is organized so as to take advantage of the quality and range of the faculty. A Wisconsin Ph.D. has the ability to teach not only a very focused topic of research, but also much of the French literary tradition.

The French graduate program offers a wide array of courses and seminars each semester, providing a fairly even distribution across the various literary periods in most academic years. Courses typically meet two or three times a week and are quite broad in focus, generally exploring well-defined periods or genres, while seminars are held once a week for two hours and take up narrower topics in greater depth. Both the offerings and the requirements of the M.A. and Ph.D. programs are designed to give students not only the tools necessary for specialization, but also an excellent knowledge of these extremely rich literary traditions.

Strong emphasis is placed on the practice of the language. French is the usual language of instruction in graduate courses and seminars. The department offers possibilities for international stay through exchange programs and further promotes the use of French through lectures, films, theater, and events at the French House.

The French Ph.D. program has a fine job placement record. Its students' solid foundation in the French and Francophone literary tradition is increasingly rare among North American literature programs, as is the extensive training students receive in language pedagogy.



## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Over half of degree coursework (18 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the University's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact program for list of specific courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

No other grade requirements

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their advisor.

## ASSESSMENTS AND EXAMINATIONS

Formal examination required. No thesis requirement.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website (<http://www.frit.wisc.edu/graduate/french/application>) for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Show broad knowledge of French and Francophone literature and culture.
- Master a broad range of texts fundamental to French and Francophone studies.
- Demonstrate critical understanding of the major works in literature and the history of ideas that have been written in French from the Middle Ages up to the present.
- Show the ability to analyze literary texts of various genres, and to formulate well-informed, interpretive arguments about them.
- Identify, select, and retrieve primary and secondary sources pertaining to questions in French and Francophone literature.
- Analyze and interpret the theories, research methods, and approaches to inquiry in this discipline.
- Demonstrate adequate proficiency in French to lead a well-informed discussion of literature and culture.
- Communicate clearly and appropriately in both written and spoken French

- Demonstrate skills as teachers of the French language and French/Francophone culture at the college level:
  1. the ability to create level- and course-appropriate instructional objectives, activities, and assessments for teaching language, literature, and culture
  2. the ability to use instructional technologies appropriately to enhance the teaching of language, literature, and culture
  3. the capacity to incorporate insights from second language acquisition theory and current best practices in foreign language teaching into instruction.

## PROFESSIONAL CONDUCT

- Students obtaining a master's degree in French and Francophone literature are expected to recognize and apply principles of ethical and professional conduct.

## PEOPLE

French Faculty: Professors Bousquet (chair), Debaisieux, Goodkin, Langer, Miernowski, Songolo, Tochon and Vila; Associate Professors Armbrrecht, El-Nossery, Willis Allen, and Vatan; Assistant Professors Armstrong, Dima, and Gipson

Italian Faculty: Professors Bousquet (chair), Buccini, Livorni, Rumble; Associate Professors Menechella, Phillips-Court; Assistant Professor Todorovic

## FRENCH, PH.D.

The M.A. and Ph.D. programs in French offer a first-rate faculty in all the areas of French and Francophone literature and culture. The program emphasizes broad coverage as well as specialization, and is organized so as to take advantage of the quality and range of the faculty. A Wisconsin Ph.D. has the ability to teach not only a very focused topic of research, but also much of the French literary tradition.

The French graduate program offers a wide array of courses and seminars each semester, providing a fairly even distribution across the various literary periods in most academic years. Courses typically meet two or three times a week and are quite broad in focus, generally exploring well-defined periods or genres, while seminars are held once a week for two hours and take up narrower topics in greater depth. Both the offerings and the requirements of the M.A. and Ph.D. programs are designed to give students not only the tools necessary for specialization, but also an excellent knowledge of these extremely rich literary traditions.

Strong emphasis is placed on the practice of the language. French is the usual language of instruction in graduate courses and seminars. The department offers possibilities for international stay through exchange programs and further promotes the use of French through lectures, films, theater, and events at the French House.

The French Ph.D. program has a fine job placement record. Its students' solid foundation in the French and Francophone literary tradition is increasingly rare among North American literature programs, as is the extensive training students receive in language pedagogy.

## FUNDING

Prospective students should see the program website ([http://www.frit.wisc.edu/graduate/french/teaching\\_assistantships](http://www.frit.wisc.edu/graduate/french/teaching_assistantships)) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the University's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Example: With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact program for list of specific courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

No other grade requirements

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their advisor.

## ASSESSMENTS AND EXAMINATIONS

Qualifying exam (if M.A. is from another institution); field exams; dissertation proposal; oral examination; dissertation; dissertation defense.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Ph.D. language requirements vary according to field chosen.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website (<http://www.frit.wisc.edu/graduate/french/application>) for details.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- The doctoral level learning goals are inclusive of the master's level learning goals for a master's degree in French and Francophone literature.

- Demonstrate thorough knowledge and critical understanding of two areas of French and Francophone literature, and of the historical and social contexts that have influenced the works examined in their dissertation.
- Show the ability to synthesize and define a field of inquiry in a persuasive, coherent, and original way.
- Make effective use of research sources, tools, and strategies in the field of French and Francophone literature.
- Demonstrate, in the writing of their Ph.D. dissertation, an originality of thinking and insight that reaches beyond the current boundaries of knowledge within the field of study.
- Articulate awareness of various questions, problems, and limitations implied by their framing of their topic.
- Contribute substantially to their area of specialization, and be able to engage in a dialogue with other experts in that area.
- Communicate and defend complex ideas in a clear and understandable manner, in both French and English.
- Be capable of applying their investigative skills to a variety of fields within French-speaking literature and cultures.
- Show reading knowledge of a second foreign language pertinent to their research specialty (and, for specialists of Medieval and 16th-century French literature, a third foreign language).
- Be prepared to be effective teachers of French/Francophone literature, culture, and language at the college and university levels.

## PROFESSIONAL CONDUCT

- Students obtaining a doctoral degree in French and Francophone literature are expected to foster ethical and professional conduct.

## PEOPLE

French Faculty: Professors Bousquet (chair), Debaisieux, Goodkin, Langer, Miernowski, Songolo, Tochon and Vila; Associate Professors Ambrecht, El-Nossery, Willis Allen, and Vatan; Assistant Professors Armstrong, Dima, and Gipson

Italian Faculty: Professors Bousquet (chair), Buccini, Livorni, Rumble; Associate Professors Menechella, Phillips-Court; Assistant Professor Todorovic

## ITALIAN, DOCTORAL MINOR

## ITALIAN, M.A.

The Italian program offers the master of arts and Ph.D. degrees. In most academic years, a wide array of courses and seminars is offered each semester to provide an even distribution across various literary periods. Courses typically meet two or three times a week and are broad in focus, generally exploring well-defined periods or genres. Seminars are held once a week for two hours and take up narrower topics in greater depth. Typical course offerings over a two- to three-year period cover all centuries of Italian literature and a wide variety of topics, including Italian culture, cinema, civilization, and linguistics. Strong emphasis is placed on the practice of the language; Italian is the usual language of instruction in graduate courses and seminars.

Graduate students gain a solid foundation not only in scholarship and criticism, but also in teaching. Most students have guarantees of support. The standard offer to an incoming teaching assistant provides a guarantee of three or four years of support, depending on whether the student has already done graduate work elsewhere. Study abroad programs and exchange agreements with individual universities provide opportunities for study and research in Italy. For example, the department frequently sends a graduate student to serve for a semester or a year as house fellow for the study program at the Villa Corsi-Salviati near Florence. In addition the department has exchange and cooperation arrangements with the Università di Siena and the Università di Firenze.

The department offers regular workshops designed to give students an overview of the job market and how to best prepare for it, making its placement record outstanding. As one of the largest Italian programs in North America, the department offers an unparalleled opportunity to study Italian literature, linguistics, and culture.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Over half of degree coursework (18 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact program for list of specific courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.25 GPA required.

### OTHER GRADE REQUIREMENTS

No other grade requirements.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their advisor.

### ASSESSMENTS AND EXAMINATIONS

Formal examination required. No thesis requirement.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website (<http://frit.wisc.edu/graduate/italian/application>) for details.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Demonstrate critical understanding of the major works of Italian literature and culture from the Middle Ages up to the present.
- Lead a well-informed discussion of literature and culture utilizing an adequate proficiency of Italian.
- Master methods of literary and cultural analysis in their specific areas of interest.
- Examine literary texts of various genres and write competent critical and analytical essays
- Lead a well-informed discussion of literature and culture utilizing an adequate proficiency of Italian.
- Identify, select, and retrieve primary and secondary sources pertaining to questions in Italian literature and culture.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## ADDITIONAL LEARNING GOALS

- Create level- and course-appropriate instructional objectives, activities, and assessments for teaching language, literature, and culture.
- Use instructional technologies appropriately to enhance the teaching of language, literature, and culture.
- Incorporate insights from second language acquisition theory and current best practices in foreign language teaching into instruction.

## PEOPLE

French Faculty: Professors Bousquet (chair), Debaisieux, Goodkin, Langer, Miernowski, Songolo, Tochon and Vila; Associate Professors Armbrecht, El-Nossery, Willis Allen, and Vatan; Assistant Professors Armstrong, Dima, and Gipson

Italian Faculty: Professors Bousquet (chair), Buccini, Livorni, Rumble; Associate Professors Menechella, Phillips-Court; Assistant Professor Todorovic

## ITALIAN, PH.D.

The Italian program offers the master of arts and Ph.D. degrees. In most academic years, a wide array of courses and seminars is offered each semester to provide an even distribution across various literary periods. Courses typically meet two or three times a week and are broad in focus, generally exploring well-defined periods or genres. Seminars are held once a week for two hours and take up narrower topics in greater depth. Typical course offerings over a two- to three-year period cover all centuries of Italian literature and a wide variety of topics, including Italian culture, cinema, civilization, and linguistics. Strong emphasis is placed on the practice of the language; Italian is the usual language of instruction in graduate courses and seminars.

Graduate students gain a solid foundation not only in scholarship and criticism, but also in teaching. Most students have guarantees of support. The standard offer to an incoming teaching assistant provides a guarantee of three or four years of support, depending on whether the student has already done graduate work elsewhere. Study abroad

programs and exchange agreements with individual universities provide opportunities for study and research in Italy. For example, the department frequently sends a graduate student to serve for a semester or a year as house fellow for the study program at the Villa Corsi-Salviati near Florence. In addition the department has exchange and cooperation arrangements with the Università di Siena and the Università di Firenze.

The department offers regular workshops designed to give students an overview of the job market and how to best prepare for it, making its placement record outstanding. As one of the largest Italian programs in North America, the department offers an unparalleled opportunity to study Italian literature, linguistics, and culture.

## FUNDING

Prospective students should see the program website ([http://frit.wisc.edu/graduate/italian/financial\\_assistance](http://frit.wisc.edu/graduate/italian/financial_assistance)) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact program for list of specific courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.30 GPA required

## OTHER GRADE REQUIREMENTS

No other grade requirements.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their advisor.

## ASSESSMENTS AND EXAMINATIONS

Qualifying exam (if M.A. is from another institution); preliminary examinations; dissertation proposal; oral examination; dissertation; dissertation defense.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Reading proficiency in two languages other than English and Italian.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website (<http://frit.wisc.edu/graduate/italian/application>) for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate thorough knowledge and critical understanding of their area of specialization.
- Synthesize and define a field of inquiry in a persuasive, coherent, and original way.
- Make effective use of research sources, tools, and strategies in the field of Italian literature and culture.
- Demonstrate, in the writing of their Ph.D. dissertation, an originality of thinking and insight that reaches beyond the current boundaries of knowledge within the field of study.
- Articulate awareness of various questions, problems, and limitations implied by their framing of their topic.
- Contribute substantially to their area of specialization, and engage in a dialogue with other experts in that area.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

### ADDITIONAL LEARNING GOALS

- Communicate and defend complex ideas in a clear and understandable manner, in both Italian and English.
- Show reading knowledge of a second foreign language pertinent to their research specialty.
- Be prepared to be effective teachers of Italian culture, and language at the college and university levels.

## PEOPLE

French Faculty: Professors Bousquet (chair), Debaisieux, Goodkin, Langer, Miernowski, Songolo, Tochon and Vila; Associate Professors Ambrecht, El-Nossery, Willis Allen, and Vatan; Assistant Professors Armstrong, Dima, and Gipson

Italian Faculty: Professors Bousquet (chair), Buccini, Livorni, Rumble; Associate Professors Menechella, Phillips-Court; Assistant Professor Todorovic

# GAYLORD NELSON INSTITUTE FOR ENVIRONMENTAL STUDIES

**Administrative Unit:** Gaylord Nelson Institute for Environmental Studies

**College/School:** Gaylord Nelson Institute for Environmental Studies

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S. in Environment and Resources; M.S. in Environmental Conservation; M.S. in Water Resources Management; Ph.D. in Environment and Resources

**Minors and Certificates:** Doctoral Minor in Air Resources Management; Doctoral Minor in Culture, History and Environment; Doctoral Minor in Environment and Resources; Doctoral Minor in Water Resources Management; Graduate/Professional Certificate in Culture, History and Environment; Graduate/Professional Certificate in Energy Analysis and Policy; Graduate/Professional Certificate in Transportation Management and Policy

## AIR RESOURCES MANAGEMENT

Emissions from human activities have repercussions on terrestrial and aquatic ecosystems as well as on local and global economics. These emissions, often dispersed over wide areas at low concentrations, can have profound and complex effects on human health. Recognition of such ubiquitous impacts has resulted in significant state and federal legislation and international initiatives that redefine how people live, work, and define their quality of life.

Air Resources Management (ARM) was introduced in 1993 to help meet the nationwide need in government, business, and industry for professionals in air quality management. This need stemmed in part from the adoption across the country of stringent air quality laws and regulations, notably the federal Clean Air Act Amendments of 1990 and their state and local counterparts.

ARM prepares students for professional air quality management work in government, business, and industry. ARM addresses air management issues at the local and ecosystem scales through interdisciplinary studies in science, economics, health, engineering, ecology, and policy. It acquaints students with a carefully planned mix of pertinent topics, including air system behavior, multimedia issues, regulation, analysis, planning, design, and control.

## CULTURAL, HISTORY AND ENVIRONMENT

The CHE certificate, administered by the Nelson Institute's Center for Culture, History, and Environment, captures the spirit of interdisciplinarity at the heart of CHE and the collaborations that have been forged across the Nelson Institute, the College of Letters & Science, and the College of Agricultural & Life Sciences. Departments, programs, and schools represented by CHE faculty and graduate students include American Indian Studies, Anthropology, Art History, Botany, Community and Environmental Sociology, English, Forest and Wildlife Ecology, Gender and Women's Studies, Geography, History, History of Science, Journalism and Mass Communication, Law, Landscape Architecture, Limnology, and Zoology.

The environmental challenges we face today arise as much from human actions as from natural processes. Only at our peril do we

forget that nature, in all its myriad forms, is inextricably bound up with every aspect of human culture, economy, and politics. In attending to past environmental and cultural change, and in synthesizing diverse research methods and approaches drawn from across the full spectrum of humanities, natural sciences, and social sciences, the certificate in culture, history, and environment (CHE) contributes in important ways to the understanding of past, present, and future environmental issues through interdisciplinary education and research.

CHE is not available as a stand-alone graduate degree. Master's and doctoral students who complete the requirements receive a certificate in CHE to supplement their graduate degree, or doctoral students can instead complete the program as an external minor. Doctoral students cannot claim CHE as both a certificate and an external minor. They must choose one or the other.

## ENERGY ANALYSIS AND POLICY

The energy analysis and policy certificate (EAP) provides students with the opportunity to customize their graduate experience, adding energy training to any graduate degree program offered at the University of Wisconsin-Madison. Graduate students can complete the EAP certificate by selecting courses that meet both their degree and EAP requirements. As such, most students can add EAP onto a degree without any additional time or cost. Many prospects choose UW-Madison specifically to participate in the EAP program, while others join EAP upon learning about it after matriculation.

Since its formation in 1980, EAP has provided students with the skills and knowledge needed by professionals in government, energy companies, consulting firms, and other organizations. EAP draws students from across campus. Particularly large student groups from public policy, environmental studies, engineering, and urban planning pursue the certificate because of the program's interdisciplinary curriculum which considers a wide range of technical, economic, political, and social factors that shape energy policy formulation and decision-making.

## ENVIRONMENT AND RESOURCES

Environment and Resources is a research program offering master's and Ph.D. degrees based on the premise that solutions to environmental challenges require interdisciplinary approaches. Faculty and students are oriented to environmental problems rather than to disciplines. Students are encouraged to explore the specific area that interests them by drawing on the insights and methods of multiple disciplines. The focus is on gaining the knowledge needed to understand the intellectual context of their work and the skills necessary to conduct original research. The program fosters experimentation and innovation, not the mastering of a narrowly defined set of prepackaged competencies. The objective is to produce graduates who are prepared to function comfortably in the complex professional and social communities within which solutions to environmental problems must be found.

The program mandates interdisciplinarity through curriculum requirements, the structure of the student's faculty advisory committee, and the research endeavor. Students are required to take some courses in diverse disciplinary topics and other courses that are intended to strengthen problem-solving skills. A thesis (M.S.) or a dissertation (Ph.D.) is required of all students. Each student's faculty advisory committee must consist of persons who collectively ensure interdisciplinary support and evaluation. Students can pursue interests over the full range of environmental studies from more of a physical or biological science research project to those emphasizing more of the social sciences or humanities including policy, environmental history, community action,

or social justice. Students who feel a need to follow a more structured course of study may also pursue certificates in culture, history, and environment; energy analysis and policy; or transportation management and policy. Any bachelor's degree from an accredited institution may be acceptable.

## ENVIRONMENTAL CONSERVATION

This interdisciplinary professional master's program in environmental conservation aims to empower graduates with the knowledge, experience, and practical training necessary to take on professional leadership positions that promote effective and equitable strategies to global challenges in conservation and sustainability. Students complete courses that integrate the study of conservation biology and ecology with social sciences and professional development tools courses.

The program leads to an M.S. degree in environmental conservation. The curriculum requires a total of 32 credits over 15 months, with the first seven months on campus and the remaining eight months through distance learning. The curriculum consists of 6 or 9 credits of a biology or ecology unit, 3 or 6 credits in social systems and sustainability courses, 4 credits in conservation planning, 3 credits in environmental policy, 9 credits in professional development and conservation tools, and 4 credits of independent practice.

## TRANSPORTATION MANAGEMENT AND POLICY

The certificate in transportation management and policy (TMP) was created to satisfy the demand for transportation professionals who understand multiple dimensions of transportation management and planning, enabling them to make choices leading to more environmentally and socially sustainable transportation systems now and in the future. Students focus not only on making transportation sustainable itself, but also on the role transportation plays in supporting and impacting society, the economy, and the environment. TMP certificate participants gain a holistic understanding of the complexities and synergies that influence transportation including climate, energy, communities, land use, resource management, economic development, and social justice.

The certificate addresses multi-modal transportation forms including highways, mass transit, air, water, and rail. By integrating study of the environment, engineering, economics, spatial analysis, and decision-making with the study of political, legal, environmental, and social factors that shape transportation management, the certificate prepares students for professional work with public sector transportation agencies, consulting firms, and other organizations concerned with transportation management and policy.

## WATER RESOURCES MANAGEMENT

The water resources management (WRM) program is an interdisciplinary graduate program leading to a master of science (M.S.) degree in water resources management. The program addresses the complex, interdisciplinary aspects of managing water resources by helping students integrate the biological and physical sciences (which identify and assess problems) with engineering (which defines technological alternatives) as well as law and the social sciences (which assess needs and potential for institutional response). Through the WRM program, a student gains breadth in relevant planning and management areas while developing depth in an area specialty.

The water resources management degree is designed to prepare students for employment as water resources management professionals. Rather

than conduct individual research projects, WRM students participate in a summer group practicum workshop with a water resources management focus. Students who wish to add individual research credentials to their records frequently arrange to complete a second, simultaneous master's program in one of the university's traditional departments. Those interested primarily in individual research may wish to consider the Nelson Institute's environment and resources program as an alternative. The WRM program does not offer a doctoral degree.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Air Resources Management, Doctoral Minor (p. 328)
- Culture, History and Environment, Doctoral Minor (p. 329)
- Culture, History and Environment, Graduate/Professional Certificate (p. 329)
- Energy Analysis and Policy, Graduate/Professional Certificate (p. 330)
- Environment and Resources, Doctoral Minor (p. 330)
- Environment and Resources, M.S. (p. 331)
- Environment and Resources, Ph.D. (p. 332)
- Environmental Conservation, M.S. (p. 334)
- Transportation Management and Policy, Graduate/Professional Certificate (p. 335)
- Water Resources Management, Doctoral Minor (p. 336)
- Water Resources Management, M.S. (p. 336)

## AIR RESOURCES MANAGEMENT, DOCTORAL MINOR

Emissions from human activities have repercussions on terrestrial and aquatic ecosystems as well as on local and global economics. These emissions, often dispersed over wide areas at low concentrations, can have profound and complex effects on human health. Recognition of such ubiquitous impacts has resulted in significant state and federal legislation and international initiatives that redefine how people live, work, and define their quality of life.

Air Resources Management (ARM) was introduced in 1993 to help meet the nationwide need in government, business, and industry for professionals in air quality management. This need stemmed in part from the adoption across the country of stringent air quality laws and regulations, notably the federal Clean Air Act Amendments of 1990 and their state and local counterparts.

ARM prepares students for professional air quality management work in government, business, and industry. ARM addresses air management issues at the local and ecosystem scales through interdisciplinary studies in science, economics, health, engineering, ecology, and policy. It acquaints students with a carefully planned mix of pertinent topics, including air system behavior, multimedia issues, regulation, analysis, planning, design, and control.

## REQUIREMENTS

ARM is not available as a stand-alone graduate degree. Each ARM student must complete at least 10 credits including one core policy



course, one core technical course, a seminar/colloquium, and one approved elective course. Doctoral students earn an external minor in ARM if they complete the specified 10-credit requirement.

## ADMISSIONS

ARM welcomes students in any doctoral degree program at UW–Madison. Students pursuing ARM are expected to have completed at least one college-level course in physics; chemistry; biology or environmental science; economics; social science in the area of government, law, institutions, or organizations; and calculus or another mathematics course beyond college algebra. Prerequisites may be waived upon recommendation of the ARM faculty.

## CULTURE, HISTORY AND ENVIRONMENT, DOCTORAL MINOR

The Center for Culture, History, and Environment (CHE) provides a home for faculty and graduate students from across campus to explore changing human-environment interactions across the broad sweep of history in an interdisciplinary setting. Graduate student involvement is at the core of CHE's mission, and graduate students from all disciplines are invited to take part in the full range of CHE's activities, events, scholarly collaborations, and professional development opportunities. CHE offers two main avenues for graduate student involvement: a non-curricular affiliation in the form of Graduate Student Associate status, and a curricular track in the form of the CHE Certificate or PhD Minor.

**Eligibility:** Any currently enrolled graduate student at UW-Madison currently at the PhD level and not pursuing any other minor field.

**Benefits:**

- Completed PhD minor will appear on transcript
- Demonstrates rigorous academic engagement with interdisciplinary environmental studies
- Ability to construct a tailored minor course of study that counts as an "Option A" minor program

## REQUIREMENTS

**Requirements:**

- 9-credit elective sequence tailored to student's interests and drawn from at least two major academic divisions
- Average GPA for coursework must be 3.00 or higher.

## ADMISSIONS

To apply: Find a CHE Faculty Associate who is willing to serve as your CHE advisor. Complete form available at <http://nelson.wisc.edu/che/teaching/certificate-phd.php> and submit with unofficial transcript.

**Admission process:** CHE Curriculum Committee reviews applications on a rolling schedule.

## CULTURE, HISTORY AND ENVIRONMENT, GRADUATE/ PROFESSIONAL CERTIFICATE

The CHE certificate, administered by the Nelson Institute's Center for Culture, History, and Environment, captures the spirit of interdisciplinarity at the heart of CHE and the collaborations that have been forged across the Nelson Institute, the College of Letters & Science, and the College of Agricultural & Life Sciences. Departments, programs, and schools represented by CHE faculty and graduate students include American Indian Studies, Anthropology, Art History, Botany, Community and Environmental Sociology, English, Forest and Wildlife Ecology, Gender and Women's Studies, Geography, History, History of Science, Journalism and Mass Communication, Law, Landscape Architecture, Limnology, and Zoology.

The environmental challenges we face today arise as much from human actions as from natural processes. Only at our peril do we forget that nature, in all its myriad forms, is inextricably bound up with every aspect of human culture, economy, and politics. In attending to past environmental and cultural change, and in synthesizing diverse research methods and approaches drawn from across the full spectrum of humanities, natural sciences, and social sciences, the certificate in culture, history, and environment (CHE) contributes in important ways to the understanding of past, present, and future environmental issues through interdisciplinary education and research.

Through the CHE Environmental History Colloquium, the annual place-based workshops, and the Tales from Planet Earth film festival, among other activities, CHE has created a lively, engaged community of faculty, graduate students, and others from a wide array of academic disciplines to investigate environmental and cultural change in the full sweep of human history. The CHE certificate considers applications from students in any graduate degree program at UW–Madison. By entering CHE early in their graduate studies and planning carefully, students often can select courses that satisfy both their degree program and CHE requirements.

CHE is not available as a stand-alone graduate degree. Master's and doctoral students who complete the requirements receive a certificate in CHE to supplement their graduate degree, or doctoral students can instead complete the program as an external minor. Doctoral students cannot claim CHE as both a certificate and an external minor. They must choose one or the other.

## REQUIREMENTS

Certificate students must complete at least 12–13 credits including an interdisciplinary methods seminar, a place-based workshop, a thematically coherent sequence of courses relating to past environmental and cultural change, and varying participation in the CHE environmental history colloquium. Courses should be chosen from at least two of the main divisions of UW–Madison curricula—the humanities, natural sciences, and social sciences—and should expose students to research approaches from outside their home discipline. Once a student and their advisor have developed and described the rationale for the chosen thematic sequence, it must be reviewed and approved by the CHE curriculum subcommittee. Possible thematic sequences might include the following: representations of nature, rural studies, urban studies, environmental conflict, environmental justice, environmental

policy and politics, communities and forests, landscape change, environmental health and history, indigenous cultures and landscapes, and environmental communications.

## ENERGY ANALYSIS AND POLICY, GRADUATE/PROFESSIONAL CERTIFICATE

The energy analysis and policy certificate (EAP) provides students with the opportunity to customize their graduate experience, adding energy training to any graduate degree program offered at the University of Wisconsin–Madison. Graduate students can complete the EAP certificate by selecting courses that meet both their degree and EAP requirements. As such, most students can add EAP onto a degree without any additional time or cost. Many prospects choose UW–Madison specifically to participate in the EAP program, while others join EAP upon learning about it after matriculation.

Since its formation in 1980, EAP has provided students with the skills and knowledge needed by professionals in government, energy companies, consulting firms, and other organizations. EAP draws students from across campus. Particularly large student groups from public policy, environmental studies, engineering, and urban planning pursue the certificate because of the program's interdisciplinary curriculum which considers a wide range of technical, economic, political, and social factors that shape energy policy formulation and decision-making.

### REQUIREMENTS

Generally, applicants to EAP should have completed at least one college-level course in each of the following areas: physical science (physics or chemistry); natural science (biological, environmental, geological, or atmospheric and oceanic); economics; an additional course in social sciences or humanities; and calculus or statistics. Occasionally, students lacking some prerequisites are admitted to the program, and the EAP admissions committee recommends courses to make up deficiencies. Each EAP student must complete six courses (18 credits): an introductory course; one course each in energy policy, energy economics/business, energy technology, and environmental studies; and a capstone seminar.

EAP is not available as a stand-alone graduate degree. Master's and doctoral students who complete the requirements receive a certificate in EAP to supplement their graduate degree. Doctoral students may count the program as a distributed minor.

## ENVIRONMENT AND RESOURCES, DOCTORAL MINOR

Environment and resources (E&R) is an interdisciplinary program intended to prepare its graduates to undertake scholarly or professional work that requires a breadth of vision sufficient to encompass the complexity of environmental issues. We seek to strengthen our students' ability to integrate across areas of knowledge so they can create, apply, and transfer world-class data, concepts, and skills about the environment and its sustainability in a flexible, interdisciplinary way to serve the people of the state, region, and world. As a program our

learning objectives entail the following. Our students should gain: (1) familiarity with methods and concepts from a range of disciplines relevant to environmental issues and outcomes (interdisciplinarity); (2) a broad understanding of environmental issues and solutions (breadth requirement); (3) knowledge from a coherent and rigorous course of study related to the thesis topic (depth requirement); (4) familiarity with quantitative and qualitative methods and methods of data analysis and presentation appropriate to the study of the environment (measure and analysis requirement); (5) a capacity to integrate knowledge and to make original contributions that improve understanding of environmental problems; (6) the ability to communicate research findings and environmental information generally in writing and orally to a broad audience, including stakeholders and the general public (thesis and defense); and (7) an understanding of professional and ethical responsibility (literature review).

Those minoring in E&R are expected to present a rationale for how they will use their coursework and related activities to accomplish our objective of strengthening a student's ability to understand and be able to address environmental problems in an integrative, interdisciplinary way.

### REQUIREMENTS

The minor requires 9 credits of coursework. Because of the breadth of environmental studies, a fixed sequence is not prescribed, since the appropriate selection of courses will be dictated in large part by the coursework in the major degree. However, students are required to select courses that collectively give them insight into an area that can be understood only by combining insights from multiple disciplines. In most cases this will build off of a student's major field of study. For example, a student majoring in a laboratory or physical science might want to emphasize coursework in social sciences or humanities to give perspective on how natural science interfaces with social or humanistic concerns.

### ADMISSIONS

The responsibility of overseeing the administration of the minor rests with the environment and resources program chair. The chair may, at his or her discretion, delegate aspects of the oversight to a subcommittee of the E&R faculty executive program committee. For example, such a subcommittee could be charged with reviewing and ultimately approving the plans submitted by doctoral students wishing to minor in E&R. Staff in the Nelson Institute's Academic Programs Office are charged with maintaining the paper and database records relevant to the minor.

For admission to the minor, students submit a form detailing the minor. On the form, the student is to (a) list the courses for the minor, (b) provide a title and brief (few sentences) description of the minor (e.g., water resources, remote sensing, energy analysis, public policy, environmental history), and (c) include the signature of the student's academic advisor indicating an endorsement of the proposed minor. Up to 3 of the 9 credits required for the minor may come from previous graduate coursework taken elsewhere. Any previous graduate coursework is to be clearly denoted as such, and the student is to include a transcript verifying where and when the course was taken.

## ENVIRONMENT AND RESOURCES, M.S.

Environment and Resources is a research program offering master's and Ph.D. degrees based on the premise that solutions to environmental challenges require interdisciplinary approaches. Faculty and students are oriented to environmental problems rather than to disciplines. Students are encouraged to explore the specific area that interests them by drawing on the insights and methods of multiple disciplines. The focus is on gaining the knowledge needed to understand the intellectual context of their work and the skills necessary to conduct original research. The program fosters experimentation and innovation, not the mastering of a narrowly defined set of prepackaged competencies. The objective is to produce graduates who are prepared to function comfortably in the complex professional and social communities within which solutions to environmental problems must be found.

The program mandates interdisciplinarity through curriculum requirements, the structure of the student's faculty advisory committee, and the research endeavor. Students are required to take some courses in diverse disciplinary topics and other courses that are intended to strengthen problem-solving skills. A thesis (M.S.) or a dissertation (Ph.D.) is required of all students. Each student's faculty advisory committee must consist of persons who collectively ensure interdisciplinary support and evaluation. Students can pursue interests over the full range of environmental studies from more of a physical or biological science research project to those emphasizing more of the social sciences or humanities including policy, environmental history, community action, or social justice. Students who feel a need to follow a more structured course of study may also pursue certificates in culture, history, and environment; energy analysis and policy; or transportation management and policy. Any bachelor's degree from an accredited institution may be acceptable.

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.S.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level

Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With thesis committee and program chair approval, students are allowed to count graduate coursework from other institutions. The number of such credits is determined on a case-by-case basis. Coursework completed five or more years prior to admission to the master's degree is not allowed to satisfy graduate degree or graduate coursework requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the program.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With thesis committee and program chair approval, students are allowed to count up to 15 credits of coursework taken as a UW-Madison Special student. Such credits from courses numbered 300 and higher can count toward graduate residency and graduate degree requirements. Such credits from courses numbered 700 and higher can count toward the graduate coursework (50%) requirement. Coursework completed five or more years prior to admission to the program is not allowed to satisfy graduate residency, graduate degree, or graduate coursework requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

One graduate seminar (research or topical) is required for the individual program focus category.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

#### OTHER GRADE REQUIREMENTS

Grades of BC or C may be counted toward program requirements if they are offset by equivalent AB or A grades in other courses. A 3.00 average must be maintained in the student's breadth categories as well as their individual program focus category. With the exception of research credits, a maximum of 2 credits graded S may be counted toward program requirements if approved by the student's thesis committee and the program chair. Courses that are audited or graded pass/fail or credit/no credit will not count toward program requirements.

#### PROBATION POLICY

The status of a student falls into one of the following three categories:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students must assemble a three-member thesis committee that represents a minimum of two departments, preferably no later than their third semester in the program. To meet the interdisciplinary requirement the committee must include members tenured in one of the natural sciences divisions (Biological Sciences, Physical Sciences) and one of the social sciences divisions (Social Studies, Arts & Humanities). Two of the three committee members must be members of the Graduate Faculty. The third, subject to approval of the program chair, may be any qualified person, on or off campus, who holds at least a master's degree.

## ASSESSMENTS AND EXAMINATIONS

All students must complete a program certification and a thesis. Students must pass a final thesis defense which constitutes the final examination.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

## DEADLINES

Application materials for Environment and Resources must be received by December 1 for admission to the following summer session or fall semester and by October 15 for admission to the following spring semester.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Familiarity with methods and concepts from a range of disciplines relevant to environmental issues and outcomes (interdisciplinarity).
- Broad understanding of environmental issues and solutions (breadth requirement).
- A coherent and rigorous course of study related to the thesis topic (depth requirement).
- Familiarity with quantitative and qualitative methods and methods of data analysis and presentation appropriate to the study of the environment (measurement and analysis requirement).
- A capacity to integrate knowledge and to make original contributions that improve understanding of environmental problems.
- A commitment and ability to communicate research findings and environmental information generally in writing and orally to a broad audience, including stakeholders and the general public.

## PROFESSIONAL CONDUCT

- An understanding of professional and ethical responsibility.

## ENVIRONMENT AND RESOURCES, PH.D.

Environment and Resources is a research program offering master's and Ph.D. degrees based on the premise that solutions to environmental challenges require interdisciplinary approaches. Faculty and students are oriented to environmental problems rather than to disciplines. Students are encouraged to explore the specific area that interests them by drawing on the insights and methods of multiple disciplines. The focus is on gaining the knowledge needed to understand the intellectual context of their work and the skills necessary to conduct original research. The program fosters experimentation and innovation, not the mastering of a narrowly defined set of prepackaged competencies. The objective is to produce graduates who are prepared to function comfortably in the complex professional and social communities within which solutions to environmental problems must be found.

The program mandates interdisciplinarity through curriculum requirements, the structure of the student's faculty advisory committee, and the research endeavor. Students are required to take some courses in diverse disciplinary topics and other courses that are intended to strengthen problem-solving skills. A thesis (M.S.) or a dissertation (Ph.D.) is required of all students. Each student's faculty advisory committee must consist of persons who collectively ensure interdisciplinary support and evaluation. Students can pursue interests over the full range of environmental studies from more of a physical or biological science research project to those emphasizing more of the social sciences or humanities including policy, environmental history, community action, or social justice. Students who feel a need to follow a more structured course of study may also pursue certificates in culture, history, and environment; energy analysis and policy; or transportation management and policy. Any bachelor's degree from an accredited institution may be acceptable.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With dissertation committee and program chair approval, students are allowed to count up to 24 credits of graduate coursework from other institutions. Coursework completed ten or more years prior to admission to the doctoral degree is not allowed to satisfy graduate degree or graduate coursework requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the program.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With dissertation committee and program chair approval, students are allowed to count up to 15 credits of coursework taken as a UW-Madison Special student. Such credits from courses numbered 300 and higher can count toward graduate residency and graduate degree requirements. Such credits from courses numbered 700 and higher can count toward the graduate coursework (50%) requirement. Coursework completed ten or more years prior to admission to the program is not allowed to satisfy graduate residency, graduate degree, or graduate coursework requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Two graduate seminars (research or topical) are required for the individual program focus category.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Due to the breadth and interdisciplinary nature of the program, environment and resources doctoral students are not required to pursue a minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

Grades of BC or C may be counted toward program requirements if they are offset by equivalent AB or A grades in other courses. A 3.00 average must be maintained in the student's breadth categories as well as their individual program focus category. With the exception of research credits, a maximum of 2 credits graded S may be counted toward program requirements if approved by the student's dissertation committee and the program chair. Courses that are audited or graded pass/fail or credit/no credit will not count toward program requirements.

## PROBATION POLICY

A semester GPA below 3.00 will result in the student being placed on academic probation. If a semester GPA of 3.00 is not attained during the

subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

All students must assemble a five-member dissertation committee that represents a minimum of three departments, preferably no later than their fourth semester in the program. To meet the interdisciplinary requirement the committee must include members tenured in one of the natural sciences divisions (Biological Sciences, Physical Sciences) and one of the social sciences divisions (Social Studies, Arts & Humanities). Four of the five committee members must be members of the Graduate Faculty. The fifth, subject to approval of the program chair, may be any qualified person, on or off campus, who holds a doctoral degree.

## ASSESSMENTS AND EXAMINATIONS

All students must complete an initial coursework proposal, preferably after their first year, as well as a final coursework proposal. Students must pass a qualifying examination, a preliminary examination, and a final dissertation defense which constitutes the final examination.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

## DEADLINES

Application materials for Environment and Resources must be received by December 1 for admission to the following summer session or fall semester and by October 15 for admission to the following spring semester.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Familiarity with methods and concepts from a range of disciplines relevant to environmental issues and outcomes (interdisciplinarity).
- Broad understanding of environmental issues and solutions (breadth requirement).
- A coherent and rigorous course of study related to the dissertation topic (depth requirement).
- Familiarity with quantitative and qualitative methods and methods of data analysis and presentation appropriate to the study of the environment (measurement and analysis requirement).

- A capacity to integrate knowledge and to make original contributions that improve understanding of environmental problems.
- A commitment and ability to communicate research findings and environmental information generally in writing and orally to a broad audience, including stakeholders and the general public.

## PROFESSIONAL CONDUCT

- An understanding of professional and ethical responsibility.

## ENVIRONMENTAL CONSERVATION, M.S.

This interdisciplinary professional master's program in environmental conservation aims to empower graduates with the knowledge, experience, and practical training necessary to take on professional leadership positions that promote effective and equitable strategies to global challenges in conservation and sustainability. Students complete courses that integrate the study of conservation biology and ecology with social sciences and professional development tools courses. Through this program students will understand:

1. foundational and state-of-the-art knowledge in conservation science, including the dynamic environments and processes that contribute to biodiversity and ecosystem services;
2. the interconnections between biodiversity conservation and human well-being, and the social, economic and institutional conditions that favor sustainability;
3. innovative problem-solving and planning strategies to complex conservation challenges;
4. diverse practical tools for promoting effective conservation research, practice and organizational outcomes.

The program leads to an M.S. degree in environmental conservation. The curriculum requires a total of 32 credits over 15 months, with the first seven months on campus and the remaining eight months through distance learning. The curriculum consists of 6 or 9 credits of a biology or ecology unit, 3 or 6 credits in social systems and sustainability courses, 4 credits in conservation planning, 3 credits in environmental policy, 9 credits in professional development and conservation tools, and 4 credits of independent practice.

No prerequisites are required for entry into the program beyond an accredited bachelor's degree. GRE scores are not required but will be considered if applicants wish to submit them. Students must also complete a professional leadership experience (independent practice) of at least eight weeks, followed by a substantial written report or deliverable for their host organization, and an exit seminar presentation.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

## MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (16 out of 32 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits from another institution are allowed to count toward the program.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Courses ENVIR ST/BOTANY/F&W ECOL/ZOOLOGY 651 Conservation Biology and ENVIR ST/ECON/POLI SCI/URB R PL 449 Government and Natural Resources taken as a UW-Madison undergraduate may count toward the program in place of the ENVIR ST 951 Conservation of Biodiversity and ENVIR ST/URB R PL 843 Land Use Policy and Planning curriculum requirements, respectively. Coursework completed five or more years prior to admission to the program is not allowed to satisfy graduate residency or graduate degree requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, courses ENVIR ST/BOTANY/F&W ECOL/ZOOLOGY 651 Conservation Biology and ENVIR ST/ECON/POLI SCI/URB R PL 449 Government and Natural Resources taken as a UW-Madison Special student may count toward the program in place of the ENVIR ST 951 Conservation of Biodiversity and ENVIR ST/URB R PL 843 Land Use Policy and Planning curriculum requirements, respectively. If ENVIR ST/URB R PL 843 has been taken already as a UW-Madison University Special student, the ENVIR ST/URB R PL 843 curriculum requirement would be satisfied. Coursework completed five or more years prior to admission to the program is not allowed to satisfy graduate residency, graduate degree, or graduate coursework requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
ENVIR ST/ URB R PL 843	Land Use Policy and Planning	3
ENVIR ST 951	Conservation of Biodiversity	3
ENVIR ST 972	Conservation Planning	4
ENVIR ST 974	Environmental Conservation Cohort Seminar	1

ENVIR ST 975	Environmental Conservation Leadership Seminar	1
ENVIR ST 976	The Practice of Conservation Biology and Sustainable Development	1
ENVIR ST 978	Environmental Conservation Tools Modules	1
ENVIR ST 979	Environmental Conservation Professional Practice	3
ENVIR ST 999	Advanced Independent Study	1-3

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all core curriculum coursework.

## PROBATION POLICY

The status of a student falls into one of the following three categories:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to have an academic advisor. Program staff will work with the student to identify an advisor during the fall semester.

## ASSESSMENTS AND EXAMINATIONS

All students must submit a leadership placement plan by April 1. They must then present an exit seminar as well as submit a final comprehensive report by August 15.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

## DEADLINES

Generally, all application materials must be received by December 1 for admission to the program that begins the following June.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Apply the principles of conservation science and sustainability to real world environmental problems.
- Explain the interconnections between environmental conservation and human well-being, and identify social, economic and institutional conditions that favor sustainability.
- Conceptualize, strategize, design, and implement innovative environmental problem-solving techniques.
- Demonstrate competence in core professional skills related to conservation practice, including: written, verbal, and visual communication; conflict resolution; interdisciplinary team building and problem definition; conservation planning; and program evaluation.

### PROFESSIONAL CONDUCT

- Recognize and apply principles of ethical and professional conduct in environmental conservation.

## TRANSPORTATION MANAGEMENT AND POLICY, GRADUATE/ PROFESSIONAL CERTIFICATE

The certificate in transportation management and policy (TMP) was created to satisfy the demand for transportation professionals who understand multiple dimensions of transportation management and planning, enabling them to make choices leading to more environmentally and socially sustainable transportation systems now and in the future. Students focus not only on making transportation sustainable itself, but also on the role transportation plays in supporting and impacting society, the economy, and the environment. TMP certificate participants gain a holistic understanding of the complexities and synergies that influence transportation including climate, energy, communities, land use, resource management, economic development, and social justice.

The certificate addresses multi-modal transportation forms including highways, mass transit, air, water, and rail. By integrating study of the environment, engineering, economics, spatial analysis, and decision-making with the study of political, legal, environmental, and social factors that shape transportation management, the certificate prepares students for professional work with public sector transportation agencies, consulting firms, and other organizations concerned with transportation management and policy.

## REQUIREMENTS

Each TMP student must complete at least 17 credits including courses in transportation systems engineering, policy, the environment, and economics; a colloquium as well as a practicum in transportation management and policy; and an internship. TMP is not available as a stand-alone graduate degree. Master's and doctoral students who complete the requirements receive a certificate in TMP to supplement their graduate degree, or doctoral students can instead count the program as a distributed minor. Doctoral students cannot claim TMP as

both a certificate and a distributed minor. They must choose one or the other.

## ADMISSIONS

TMP welcomes applications from students in any graduate degree program at UW–Madison. The certificate is geared particularly toward those with academic backgrounds in business, economics, engineering, environmental studies, land management, public affairs, and/or urban planning. By entering TMP early in their graduate studies and planning carefully, students often can select courses that satisfy both their degree program and TMP requirements. Students entering the program are expected to have completed at least one college-level course in statistics. Students may be admitted with a deficiency in statistics, but will be expected to complete at least one statistics course in addition to other requirements.

## WATER RESOURCES MANAGEMENT, DOCTORAL MINOR

Any student enrolled in a University of Wisconsin-Madison PhD program can pursue a doctoral minor in Water Resources Management. Meeting the increasing human demand for water while ensuring its future availability and quality is a significant societal challenge. The Water Resources Management (WRM) program prepares students to face the complexities of managing this critical natural resource. Students complete coursework that integrates the biological and physical sciences (which identify and measure problems) with engineering (which provides technological alternatives), law, and the social sciences (which assess needs and potential for institutional response). Each WRM student gains breadth in relevant planning and management areas while developing depth in an area specialty. WRM students participate in a summer group practicum workshop with a water resources management focus.

## REQUIREMENTS

Courses are chosen in conjunction with the chair, who serves as the minor advisor, and the student's departmental advisor. A PhD student may earn a doctoral minor in Water Resources Management by completing 11-12 credits that include the following courses: ENVIR ST/CIV ENGR/URB R PL 718 Water Resources Management Practicum Planning Seminar II, ENVIR ST/CIV ENGR/URB R PL 719 Water Resources Management Summer Practicum, and two additional courses (300-level and higher) in one or more of the WRM curriculum breadth categories. Breadth courses should complement the PhD major and academic background as well as address any gaps in their training within the WRM curriculum breadth categories. Students are expected to achieve a B or better in all courses used for the minor. Minor and major credits/courses cannot overlap or double-count.

## ADMISSIONS

Doctoral students who wish to pursue an Option A external minor in Water Resources Management should consult the chair of the Water Resources Management graduate program.

## WATER RESOURCES MANAGEMENT, M.S.

The water resources management (WRM) program is an interdisciplinary graduate program leading to a master of science (M.S.) degree in water resources management. The program addresses the complex, interdisciplinary aspects of managing water resources by helping students integrate the biological and physical sciences (which identify and assess problems) with engineering (which defines technological alternatives) as well as law and the social sciences (which assess needs and potential for institutional response). Through the WRM program, a student gains breadth in relevant planning and management areas while developing depth in an area specialty.

The water resources management degree is designed to prepare students for employment as water resources management professionals. Rather than conduct individual research projects, WRM students participate in a summer group practicum workshop with a water resources management focus. Students who wish to add individual research credentials to their records frequently arrange to complete a second, simultaneous master's program in one of the university's traditional departments. Those interested primarily in individual research may wish to consider the Nelson Institute's environment and resources program as an alternative. The WRM program does not offer a doctoral degree.

Any person who attended an accredited institution and earned an undergraduate degree there in the biological sciences, earth sciences, economics, education, engineering, history, journalism, landscape architecture, law, mathematics, physical science, political science, urban and regional planning, or other suitable field may apply for admission to the WRM program.

Two tracks are available. All applicants should apply for the regular 45-credit track, which provides depth in an area specialty in addition to breadth in resource management and planning. The alternate track (30 to 44 credits) is for those who have at least three years of pertinent professional experience or for those advanced students who already have a related master's degree prior to entering the program. Either such candidate may appeal for the alternate track based on their background. The alternate track, also known as the reduced-credit track, can be pursued with the consultation of one's faculty advisory committee once that candidate is enrolled in the program. The candidate's advisory committee and the program chairperson make the final determination as to whether or not the alternate track is appropriate. No thesis is required for either track, but every WRM student must complete the 2-credit spring planning seminar and the associated 4-credit summer group practicum workshop.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available reduced-credit track



## MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

M.S.: 45 credits

M.S.: reduced-credit track: 30–44 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (M.S.: 23 credits out of 45 total credits; M.S.: reduced-credit track—contingent number of credits depending upon how many the student has to satisfy from 30–44) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With faculty advisory committee and program chair approval, students are allowed to count graduate coursework from other institutions. The number of such credits is determined on a case-by-case basis. Coursework completed five or more years prior to admission to the program is not allowed to satisfy graduate degree or graduate coursework requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the program.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With faculty advisory committee and program chair approval, students are allowed to count up to 15 credits of coursework taken as a UW–Madison Special student. Such credits from courses numbered 300 and higher can count toward graduate residency and graduate degree requirements. Credits from graduate-level courses (courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>)) can count toward the graduate coursework requirement. Coursework completed five or more years prior to admission to the program is not allowed to satisfy graduate residency, graduate degree, or graduate coursework requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

ENVR ST/CIV ENGR/URB R PL 718 Water Resources Management Practicum Planning Seminar II and ENVR ST/CIV ENGR/URB R PL 719 Water Resources Management Summer Practicum.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

Grades of BC or C are not typically accepted toward program requirements unless the grade is allowed by the student's faculty advisory committee and the program chair. Grades of BC and C may not

be used in the area specialty category. A maximum of 3 credits graded S may be counted toward program requirements if approved by the student's faculty advisory committee and the program chair. Courses that are audited or graded pass/fail or credit/no credit will not count toward program requirements.

## PROBATION POLICY

The status of a student falls into one of the following three categories:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students must assemble a three-member faculty advisory committee that represents a minimum of two departments, preferably no later than their second semester in the program. To meet the interdisciplinary requirement the committee must include members tenured in one of the natural sciences divisions (Biological Sciences, Physical Sciences) and one of the social sciences divisions (Social Studies, Arts & Humanities).

## ASSESSMENTS AND EXAMINATIONS

All students must hold an evaluation and guidance conference with their faculty advisory committee, preferably no later than their third semester in the program.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

## DEADLINES

Application materials for water resources management must be received by December 15 for admission to the following summer session or fall semester and by October 15 for admission to the following spring semester.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Students will expand their knowledge of the physical, chemical, biological, and social sciences and learn how to apply this knowledge to the management of water resources.
- Students will understand water resource decision-making at governance levels from local to national.

- Students will be able to use a wide range of analytical tools to sustainably manage water resources.
- Students will be able to participate in as well as lead interdisciplinary teams.
- Students will be able to orally and in writing communicate to stakeholders the findings and recommendations of interdisciplinary projects.

## **PROFESSIONAL CONDUCT**

- Students will have an understanding of professional and ethical responsibility.

# GENDER AND WOMEN'S STUDIES

**Administrative Unit:** Gender and Women's Studies

**College/School:** College of Letters & Science

**Admitting Plans:** M.A.

**Degrees Offered:** M.A.

**Minors and Certificates:** Doctoral Minor, Graduate/Professional Certificate

Gender and women's studies is a well-established field of scholarship—a multidiscipline with its own body of theory, its array of accepted methods, and a history of scholarly contributions focused on the place of gender and women in society. Its research and teaching seek to expand the understanding and appreciation of gendered lives and experiences, both historically and in contemporary societies. In building this understanding, scholarship encompasses the arts and humanities and the social and natural sciences.

Scholarship and teaching in the Department of Gender and Women's Studies actively engages with multiple dimensions of the social, political and cultural dynamics of power. For example, gender and women's studies scholars explore how gender is intrinsic to global processes, how these processes intersect with local, regional and national identities, and how gender itself is shaped by race, ethnicity, dis/ability, nationality, sexuality, class, caste, age, and religion. Gender and women's studies scholars make contributions both by reevaluating past knowledge and by developing new interdisciplinary research methods and theories. Many academic disciplines, in fact, have undergone paradigm shifts that have been directly influenced by the theoretical and research approaches developed in the field of gender and women's studies.

Department faculty members and affiliates bring together a broad range of interests, research agendas, and teaching styles. The curriculum reflects this interdisciplinarity and offers students an opportunity to apply gender analysis in fields such as African American studies, African studies, American Indian studies, anthropology, the arts, Asian American studies, communications studies, comparative literature, Chicana/o and Latina/o studies, disability studies, education, folklore, health sciences, history, international studies, law, Latin American Studies, literature, media, philosophy, performance studies, political science, psychology, sociology, sexuality studies, South Asian studies, and visual culture. Faculty members have national and international reputations both as gender and women's studies scholars and as disciplinary scholars. In publications, leadership and awards, the department is among the most visible gender and women's studies departments in the country.

During a period of activism and debate that extended across the University of Wisconsin System, the women's studies program was established in 1975. It has grown steadily from a small program offering three courses a year to one of the largest and most well-respected programs in the United States. An undergraduate major serves more than 100 students each year; an undergraduate certificate serves approximately 150 students; a master's program admits approximately six students each year; and a doctoral minor and certificate at the graduate level are also offered. In 2008, the program achieved department status and changed the name to the Department of Gender and Women's Studies.

The department lists more than 100 courses, both crosslisted and specific to the department. Many courses are available to both advanced undergraduate and graduate students. Some enroll only graduate students. The department offers 20–25 courses each year, augmented by crosslisted courses from other departments. Selected courses are also offered in the summer.

## CENTER FOR RESEARCH ON GENDER AND WOMEN

The Center for Research on Gender and Women was established in 1977 to promote scholarly interactions among women and gender studies researchers on campus, as well as linkages with women's studies centers and scholars nationally and internationally.

The research center engages in different kinds of activities to stimulate gender and women's studies research, including organizing lectures, colloquia, workshops and conferences, featuring campus, national and international speakers and creative artists. The center promotes research collaboration and externally funded research projects, provides proposal writing support, sponsors an honorary fellow program, facilitates networking of women and gender studies scholars across campus, and fosters links with other gender and women's studies research centers around the country and the world.

These exchanges, as well as other events sponsored by the center, serve to draw together faculty, graduate students, and community members for mutual enrichment. Questions about the center should be sent to the director of the Center for Research on Gender and Women: (<http://womenstudies.wisc.edu/CRGW>)

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## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Gender and Women's Studies, Doctoral Minor (p. 339)
- Gender and Women's Studies, Graduate/Professional Certificate (p. 340)
- Gender and Women's Studies, M.A. (p. 340)

## PEOPLE

**Faculty:** Professors Enke, Ewig, Ferree, Friedman, Hyde, Lepowsky, Tripp; Associate Professors Garlough, Houck, Samuels; Assistant Professors Higgins, Ipsen, Lindsay

## GENDER AND WOMEN'S STUDIES, DOCTORAL MINOR

Any student enrolled in a UW–Madison doctoral program can pursue a doctoral minor in gender and women's studies. The doctoral minor offers substantial and systematic training in the field of gender and women's studies and can be tailored to a student's specific interests. A doctoral minor in gender and women's studies is an excellent way to gain training in feminist analysis and research methods as well as in substantive

topical areas related to women and gender that can be applied to one's research field and to one's teaching. The training is greatly aided by the presence of outstanding library holdings and a gender and women's studies librarian.

Graduate students may not earn both an Option A minor and graduate/professional certificate in gender and women's studies.

## REQUIREMENTS

### OPTION A MINOR

Graduate students who wish to pursue an Option A external minor in gender and women's studies should consult the associate chair of the Department of Gender and Women's Studies. Courses are chosen in conjunction with the associate chair, who serves as the minor advisor, and the student's departmental advisor. A student may earn a doctoral minor in gender and women's studies with 9 credits, if all 9 credits are in exclusively graduate-level GEN&WS courses numbered 700 and above. Alternatively, a student may earn the minor with 12 credits if these are courses numbered 300 and above and identified as designed for graduate work. One course must be GEN&WS 900 Approaches to Research in Women's Studies/Gender Studies. Students are expected to achieve a B or better in all courses used for the minor. Directed study courses do not count toward the minor. Students may not use colloquia or "brown bag" format courses toward requirements of the doctoral minor. Transferred credits are discouraged, but may be allowed with approval of the associate chair. If a student is pursuing two Ph.D. minors, no more than one course shall overlap between the gender and women's studies minor and the other minor.

### OPTION B MINOR

Graduate students who wish to pursue an Option B minor combine coursework with a gender component from two or more departments outside the student's major department. The student's home department is responsible for approving an Option B minor.

## PEOPLE

**Faculty:** Professors Enke, Ewig, Ferree, Friedman, Hyde, Lepowsky, Tripp; Associate Professors Garlough, Houck, Samuels; Assistant Professors Higgins, Ipsen, Lindsay

## GENDER AND WOMEN'S STUDIES, GRADUATE/PROFESSIONAL CERTIFICATE

Aimed at students enrolled in master's and professional degree programs, the graduate/professional certificate in gender and women's studies is designed to provide students with gender expertise that they can apply in a variety of fields. The requirement of a foundational course (800, 900 or 933) provides grounding in the major concepts, theories, and research approaches related to the study of gender and women. This foundation provides the necessary theoretical tools to allow students to analyze gender and its relationship with other socially meaningful categories such as class, race, ethnicity, disability, and sexuality in a variety of contexts. Two additional courses allow students to deepen their empirical knowledge of women and/or gender in a specific area or areas. Choice

in these courses allows students to tailor their study to areas related to future career or study ambitions.

## REQUIREMENTS

The certificate in gender and women's studies at the graduate level may be earned by students enrolled in a graduate program at the University of Wisconsin–Madison. Generally, the associate chair serves as the advisor. Interested students should meet with the associate chair early in the process to plan a course of study and to declare their intention to earn the certificate. Students must meet all of the following requirements in order to earn the certificate at the graduate level:

- Enrollment in a graduate program at the University of Wisconsin–Madison.
- Three courses for a total of 9 credits of academic coursework in the Department of Gender and Women's Studies at the 300 level or above and designated for graduate course attribute.
- One course must be either GEN&WS 880 Proseminar: Graduate Study in Gender and Women's Studies, GEN&WS 900 Approaches to Research in Women's Studies/Gender Studies, or GEN&WS/POLI SCI 933 Feminist Political Theory.
- Students enrolled in courses at the 300–600 level should inform the instructor that they are taking the course for a graduate-level certificate and will complete additional readings/assignments consistent with expectations for a graduate student.
- 6 credits must be in residence at UW–Madison. A maximum of 6 credits may be transferred from other institutions.
- Directed study (GEN&WS 699 Directed Study, GEN&WS 799 Independent Research at the Master's and Professional Level, GEN&WS 999 Independent Research) and colloquia courses may not be used toward the certificate.
- A 3.0 grade is the minimum for courses counting toward the certificate. All courses must be taken for a letter grade (no pass/fail courses).

Graduate students may not earn both a Option A minor and graduate/professional certificate in Gender and Women's Studies.

## PEOPLE

**Faculty:** Professors Enke, Ewig, Ferree, Friedman, Hyde, Lepowsky, Tripp; Associate Professors Garlough, Houck, Samuels; Assistant Professors Higgins, Ipsen, Lindsay

## GENDER AND WOMEN'S STUDIES, M.A.

The master's degree in gender and women's studies provides advanced feminist training in gender analysis for students with a variety of academic backgrounds and career plans. Incorporating local, cross-cultural and transnational emphases, the curriculum encourages students and faculty from the humanities, arts, social sciences and natural sciences to develop innovative ways of expanding knowledge about gender in global, local, and historical contexts. As the name gender and women's studies indicates, the M.A. retains the emphasis on women's lives and situations that have historically informed the field of women's studies, while also emphasizing the incisive import

of gender as a category of analysis transforming knowledge about, for example, masculinity and men's lives, transgendered lives, as well as other complex topics. The degree engages the wide-ranging and multidisciplinary perspectives associated with gender studies and women's studies: queer studies, transgender studies, sexuality studies, race and ethnicity studies, disability studies, area and global studies, cultural studies, postcolonial and transnational studies.

The M.A. curriculum draws from the strengths of current course offerings in the program, as well as from methodologies and course offerings in other fields and departments. Among the domains of inquiry explored within the curriculum are: work, family and education; social movements, the state and civil society; bodies, genders, health and sexualities; individual, collective and communal identities; communications, technology and culture industries; politics of representation, media and cultural practices; migration, immigration, labor and political economy; militarism, international relations and governmental processes; intersectionality of systems of women's oppression; and arts, performance, and visual cultures. Some courses investigate these topics at the global level while others focus on the local, regional or national levels. The curriculum ensures an overarching transnational and cross-cultural framework. Courses use interdisciplinary methodologies and/or disciplinary approaches.

The degree program is designed to be a two-year full-time sequence; however, the program is also flexible enough to allow part-time students to pursue the M.A. All students are expected to maintain satisfactory progress in the graduate program in accordance with the regulations of the Graduate School and department policies.

Each student will complete 30 credits of coursework plus a thesis or a comprehensive exam project. Of the 30 credits, at least 15 must be in designated courses in the Department of Gender and Women's Studies. The remaining credits may also be departmental courses or may be chosen (entirely or in part) from graduate-level courses in other departments and programs in the university. All courses should be selected in consultation with the Director of Graduate Studies and/or the advisor, who must approve the selections.

Degree requirements include: 30 credits, 15 of which must be in courses in the Department of Gender and Women's Studies; GEN&WS 880 Proseminar: Graduate Study in Gender and Women's Studies; GEN&WS 900 Approaches to Research in Women's Studies/Gender Studies; a graduate level feminist theory course; and a thesis project or exam.

To remain in good standing in the M.A. program, certain deadlines must be met in a timely fashion.

1. Students are expected to file their advisor form by the first week of classes of their second year of study.
2. Students are required to have a thesis or exam committee arranged by the first week of their fourth semester.
3. Students are required defend their thesis or complete their exams by the end of their fourth semester;

formal requests for an extension of the time for the thesis or exam will be considered, but not guaranteed. Failure to meet any of these requirements may result in a student being asked to leave the program.

A full description of the requirements for the MA degree program is available in our graduate program handbook (<http://womenstudies.wisc.edu/handbook/GraduateHandbook.pdf>).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

21 of the 30 credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept prior graduate coursework from other institutions toward the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNDERGRADUATE

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison toward fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNIVERSITY SPECIAL

The program may decide to accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

GEN&WS 880 Proseminar: Graduate Study in Gender and Women's Studies  
GEN&WS 900 Approaches to Research in Women's Studies/

Gender Studies; feminist theory courses. 15 of the required 30 credits must be in GWS; at least 50% of the GWS courses must be graduate-level courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website (<https://womenstudies.wisc.edu/MAApplication.htm>) for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### KNOWLEDGE

- Students should demonstrate the ability to read, understand, and critique the major concepts and theories related to feminism, women, and gender, and apply these critical perspectives across disciplines.
- Students should show an understanding of historical and contemporary agency by people across a spectrum of gender and the ways this agency has shaped lives in various geographic settings.
- Students should demonstrate the ability to analyze the intersections between gender and other socially meaningful categories, such as race, class, gender identity, ethnicity, disability, nation, religion, and sexuality, and to explain how gender functions as a social institution.

#### SKILLS

- Students should demonstrate the ability to conduct interdisciplinary feminist analysis that (1) includes a critical literature review, (2) selects appropriate research methodologies, and (3) proposes an appropriate research design to collect, analyze, interpret, and present findings.
- Students will develop and utilize strong cultural competencies (e.g., sensitivity to race/ethnicity/gender/disability/sexual orientation issues) to allow them to enter into various cultural, social, economic, civic, academic, and workplace settings.

### PROFESSIONAL CONDUCT

- Students will acknowledge and engage in ethical courses of action in research and collaborative practice.

## PEOPLE

**Faculty:** Professors Enke, Ewig, Ferree, Friedman, Hyde, Lepowsky, Tripp; Associate Professors Garlough, Houck, Samuels; Assistant Professors Higgins, Ipsen, Lindsay

# GENETICS

**Administrative Unit:** Genetics

**College/School:** College of Agricultural and Life Sciences

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

Graduate training in genetics emphasizes study and research leading to a Ph.D. degree in genetics. M.S. degrees in medical genetics with specialized training in genetic counseling are also available. For more information on M.S. degrees in genetic counseling, see Genetic Counseling (<http://www.med.wisc.edu/education/graduate-programs/genetic-counseling/main/26910>).

The goal of the genetics graduate program is to train the next generation of professional geneticists. This includes selecting the most promising university graduates for admission to the program and training those students in the methods and logic of genetic analysis. Such analyses are increasingly important in contemporary biological and biomedical research. The curriculum includes:

1. coursework on the principles of genetics and on the methods of genetic and genomic analyses, and
2. original research in a specialized area, which culminates in the writing and defense of a doctoral thesis.

The genetics Ph.D. program is administered by the Laboratory of Genetics, which consists of the Department of Genetics in the College of Agricultural and Life Sciences, and the Department of Medical Genetics in the School of Medicine and Public Health. The two departments are administratively distinct, but they function as a single combined department at both the faculty and student levels. The Laboratory of Genetics is highly regarded for its long history of scholarly contributions to the field of genetics, including subdisciplines such as plant genetics, population genetics, developmental genetics, molecular genetics, immunogenetics, neurogenetics, cytogenetics, genetics of viruses, bacterial genetics, and mammalian genetics. The genetics graduate program is supported by the oldest and one of the largest NIH-funded genetics training grants in the country.

The strength of genetics research at Wisconsin derives in large part from the Laboratory of Genetics, but state-of-the-art genetics research is conducted in many campus departments and centers. Training faculty of the genetics Ph.D. program includes 84 trainers selected from 22 campus departments and schools based on the strength of their scholarly genetics research. Genetics Ph.D. students choose one of the 84 training faculty as the graduate thesis advisor and mentor. Faculty trainers of the genetics Ph.D. program include those with academic appointments and research laboratories in the departments of Agronomy, Bacteriology, Biochemistry, Biomolecular Chemistry, Biostatistics and Medical Informatics, Botany, Cell and Regenerative Biology, Genetics, Horticulture, Medical Genetics, Medical Microbiology and Immunology, Medicine, Neuroscience, Neurology, Nutritional Science, Oncology, Ophthalmology and Visual Sciences, Pediatrics, Plant Pathology, and Zoology, as well as the Laboratory of Molecular Biology and the School of Pharmacy.

Genetics graduate students spend time during the first semester of graduate school in the laboratories of three or four faculty trainers, selected by the student. Following rotations, a graduate thesis advisor

is chosen by mutual consent of both student and professor. Students are expected to acquire a broad and fundamental knowledge of genetics during their coursework, after which they conduct independent scholarly research based on individual interests and under the guidance and mentoring of the thesis advisor. Formal coursework requirements are modest, and independent study that includes original research is of paramount importance in the program. Students choose an individualized thesis advisory committee of five faculty members (including the thesis advisor) that approves formal coursework and provides scientific and career development advice throughout a student's graduate career.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Genetics, Doctoral Minor (p. 343)
- Genetics, M.S. (p. 344)
- Genetics, Ph.D. (p. 346)

## PEOPLE

**Faculty:** Professors Doebley (chair), Anderson, Carroll, Engels, Ganetzky, Ikeda, Laughon, Masson, Pelegri, Perna, Prolla, Schwartz, Sun, Wassarman, Yin; Associate Professors Chang, Gasch, Payseur, Skop; Assistant Professors Hittinger, Loewe, O'Connor-Giles, Pool, Zhong

## GENETICS, DOCTORAL MINOR

The doctoral minor in genetics provides graduate students with solid course training in the area of genetics. The field of genetics seeks to understand how information is encoded in an organism's genome, how that information is read, replicated, and maintained by the cell, and how it evolves over time to impact organismal phenotypes. Courses offered through the Laboratory of Genetics span a wide variety of genetic topics, concepts, and experimental approaches. These include genetics related to human biology and disease, agriculture, conservation biology, and specialties such as neurogenetics, epigenetics, computational and statistical genetics, quantitative and population genetics, and basic, discovery-based genetic applications. Students who complete the doctoral minor in genetics will gain a strong foundation in genetic research and its application. In addition, through many of the courses offered in the Laboratory of Genetics, students gain experience in critical experimental thinking, oral and written presentation, and grant writing.

## REQUIREMENTS

Ph.D. students must complete 9 credits of coursework offered through the Laboratory of Genetics. Coursework must be graded courses numbered 300 or above and does not include audits or pass/fail courses. Students should consult with their home department to verify that they are meeting the minimum graduate coursework (50%) rule, as some courses offered in the low-numbered range may not meet the Graduate School requirements for graduate students.

## ADMISSIONS

Interested students should contact the director of the genetics Ph.D. program (Audrey Gasch, [agasch@wisc.edu](mailto:agasch@wisc.edu)) to discuss their interest in the genetics doctoral minor and their course plans.

## PEOPLE

**Faculty:** Professors Doebley (chair), Anderson, Carroll, Engels, Ganetzky, Ikeda, Laughon, Masson, Pelegri, Perna, Prolla, Schwartz, Sun, Wassarman, Yin; Associate Professors Chang, Gasch, Payseur, Skop; Assistant Professors Hittinger, Loewe, O'Connor-Giles, Pool, Zhong

## GENETICS, M.S.

Graduate training in genetics emphasizes study and research leading to a Ph.D. degree in genetics. M.S. degrees in medical genetics with specialized training in genetic counseling are also available. For more information on M.S. degrees in genetic counseling, see Genetic Counseling (<http://www.med.wisc.edu/education/graduate-programs/genetic-counseling/main/26910>).

The goal of the genetics graduate program is to train the next generation of professional geneticists. This includes selecting the most promising university graduates for admission to the program and training those students in the methods and logic of genetic analysis. Such analyses are increasingly important in contemporary biological and biomedical research. The curriculum includes:

1. coursework on the principles of genetics and on the methods of genetic and genomic analyses, and
2. original research in a specialized area, which culminates in the writing and defense of a doctoral thesis.

The genetics Ph.D. program is administered by the Laboratory of Genetics, which consists of the Department of Genetics in the College of Agricultural and Life Sciences, and the Department of Medical Genetics in the School of Medicine and Public Health. The two departments are administratively distinct, but they function as a single combined department at both the faculty and student levels. The Laboratory of Genetics is highly regarded for its long history of scholarly contributions to the field of genetics, including subdisciplines such as plant genetics, population genetics, developmental genetics, molecular genetics, immunogenetics, neurogenetics, cytogenetics, genetics of viruses, bacterial genetics, and mammalian genetics. The genetics graduate program is supported by the oldest and one of the largest NIH-funded genetics training grants in the country.

The strength of genetics research at Wisconsin derives in large part from the Laboratory of Genetics, but state-of-the-art genetics research is conducted in many campus departments and centers. Training faculty of the genetics Ph.D. program includes 84 trainers selected from 22 campus departments and schools based on the strength of their scholarly genetics research. Genetics Ph.D. students choose one of the 84 training faculty as the graduate thesis advisor and mentor. Faculty trainers of the genetics Ph.D. program include those with academic appointments and research laboratories in the departments of Agronomy, Bacteriology, Biochemistry, Biomolecular Chemistry, Biostatistics and Medical Informatics, Botany, Cell and Regenerative Biology, Genetics,

Horticulture, Medical Genetics, Medical Microbiology and Immunology, Medicine, Neuroscience, Neurology, Nutritional Science, Oncology, Ophthalmology and Visual Sciences, Pediatrics, Plant Pathology, and Zoology, as well as the Laboratory of Molecular Biology and the School of Pharmacy.

Genetics graduate students spend time during the first semester of graduate school in the laboratories of three or four faculty trainers, selected by the student. Following rotations, a graduate thesis advisor is chosen by mutual consent of both student and professor. Students are expected to acquire a broad and fundamental knowledge of genetics during their coursework, after which they conduct independent scholarly research based on individual interests and under the guidance and mentoring of the thesis advisor. Formal coursework requirements are modest, and independent study that includes original research is of paramount importance in the program. Students choose an individualized thesis advisory committee of five faculty members (including the thesis advisor) that approves formal coursework and provides scientific and career development advice throughout a student's graduate career.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept prior graduate coursework from other institutions toward the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.



## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison toward fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

The program may decide to accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirement.

## ADMISSIONS

Ph.D. students in genetics choose to attend Wisconsin because of their commitment to the discipline of genetics and because of Wisconsin's strength in that area. Entering students are expected to have a strong background in biology, which should include undergraduate coursework in chemistry, organic chemistry, biochemistry, physics, mathematics through calculus, and statistics. In addition, entering students are expected to have a strong record of independent laboratory research experience.

Admission to the genetics Ph.D. program is highly competitive. A committee of the Laboratory of Genetics reviews applications each fall, invites meritorious applicants for personal interviews each February, and accepts approximately 15 percent of total applications received. An application for admission consists of:

1. a resume,
2. a personal statement that discusses the reasons for pursuing a genetics Ph.D.,
3. an official transcript of coursework sent by the applicant's undergraduate college or university,
4. three or more letters of recommendation,
5. a report from the Educational Testing Service of scores received on the required GRE General Test and on a recommended but not required Subject Test in Biology or Biochemistry,
6. a report, if appropriate, of scores received on either the TOEFL or IELTS exams of English language proficiency, and
7. any other information or documentation that would help the admissions committee evaluate an applicant's potential for success in graduate study.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### KNOWLEDGE

- Students will demonstrate a broad understanding in the principles of genetics and heredity in all organisms. They will develop particular expertise in at least one of the broad subject areas of the doctoral program.
- Students will demonstrate a broad understanding of major current and past theories, research findings and methodologies and techniques in genetics, with particular expertise in their area of concentration, both orally and in writing.

- Students will develop critical thinking skills. They will retrieve and examine scientific literature, evaluate evidence for and against hypotheses, identify knowledge gaps, strengths and weaknesses in existing literature, synthesize knowledge, develop conclusions, and formulate plans for moving the current state of knowledge forward.

## RESEARCH

- Students will demonstrate research expertise in genetics by presenting to their supervisory committee a research report based on their own experimental work or based on critical review of original peer-reviewed literature on a topic of current interest in genetics.
- Students will retrieve and interpret professional peer-reviewed literature and use this information to evaluate theoretical frameworks, testable hypotheses, and predictions.
- Students will demonstrate the ability to critically evaluate research based on design, feasibility, and internal controls, and to explain how such research addresses important unsolved problems in genetic or biomedical research.

## COMMUNICATION

- Professional scientists are, simultaneously, lifelong students and educators. Students graduating with a master's degree in genetics will have learned how to communicate effectively to diverse audiences in writing, through oral presentations, and during formal and informal discussions.
- Students will master methods of communicating and interacting effectively with professional colleagues.
- Students will articulate their research and its significance both formally and informally to diverse audiences.
- Students will give and receive feedback on communication skills both orally and in writing.
- Students will be provided with opportunities to engage in public outreach and education.

## EDUCATION

- Students will effectively teach the principles of genetics and the methods used in contemporary genetic research.
- Students will receive in-class educational training by serving as teaching assistants for at least one semester of an undergraduate genetics course.
- Students will be provided with opportunities to mentor other students (for example, undergraduate students) in a laboratory research setting.
- Interested students will have opportunities to perform outreach activities in which they educate school-age students or individuals from other fields on the principles of modern genetics.

## CAREER PREPARATION

- Students will be provided with diverse training that will prepare them for a range of flexible and sustainable careers in, for example, academia, industry, government, science policy, administration, commerce, journalism, law, education and community outreach.
- Students will develop broadly applicable skills in critical thinking and problem solving.
- Students will be provided with opportunities for teamwork, written and oral communication skills and collaborations.

## PROFESSIONAL CONDUCT

- Students will receive training in professional ethics and the responsible conduct of science.
- Students will be trained to use scientific rigor when designing experiments, collecting and analyzing data, and interpreting and reporting results.
- Students will discuss and formulate opinions on the many situations that working scientists encounter involving professional ethics and conflicts of interest.
- Students will receive training in laws, regulation, permits and licenses, occupational health, safety standards and best practices, will demonstrate understanding of such and adhere to compliance.

## ADDITIONAL LEARNING GOALS

The genetics graduate program also recognizes and strives to meet the student learning goals of the College of Agricultural and Life Sciences.

- CALS student learning goals. The college's goal is to ensure that every student develops:
- specialized knowledge in at least one discipline, along with an education broad enough to meet the challenges of changing careers and opportunities
- the ability to think critically and creatively: to synthesize, analyze, and integrate ideas for decision making and problem solving
- the ability to communicate effectively through writing and speaking by observing, reading, listening, and using appropriate information technologies
- a global perspective; an appreciation for the interdependencies among individuals and their workplaces, communities, environments, and world; and an understanding of the interrelationships between science and society
- the ability to work with others in small or large groups, to recognize civic and social responsibilities, and to appreciate the uses of public policy in a democracy
- a respect for truth, a tolerance for diverse views, and a strong sense of personal and professional ethics

## PEOPLE

**Faculty:** Professors Doebley (chair), Anderson, Carroll, Engels, Ganetzky, Ikeda, Laughon, Masson, Pelegri, Perna, Prolla, Schwartz, Sun, Wassarman, Yin; Associate Professors Chang, Gasch, Payseur, Skop; Assistant Professors Hittinger, Loewe, O'Connor-Giles, Pool, Zhong

## GENETICS, PH.D.

Graduate training in genetics emphasizes study and research leading to a Ph.D. degree in genetics. M.S. degrees in medical genetics with specialized training in genetic counseling are also available. For more information on M.S. degrees in genetic counseling, see Genetic Counseling (<http://www.med.wisc.edu/education/graduate-programs/genetic-counseling/main/26910>).

The goal of the genetics graduate program is to train the next generation of professional geneticists. This includes selecting the most promising university graduates for admission to the program and training those students in the methods and logic of genetic analysis. Such analyses

are increasingly important in contemporary biological and biomedical research. The curriculum includes:

1. coursework on the principles of genetics and on the methods of genetic and genomic analyses, and
2. original research in a specialized area, which culminates in the writing and defense of a doctoral thesis.

The genetics Ph.D. program is administered by the Laboratory of Genetics, which consists of the Department of Genetics in the College of Agricultural and Life Sciences, and the Department of Medical Genetics in the School of Medicine and Public Health. The two departments are administratively distinct, but they function as a single combined department at both the faculty and student levels. The Laboratory of Genetics is highly regarded for its long history of scholarly contributions to the field of genetics, including subdisciplines such as plant genetics, population genetics, developmental genetics, molecular genetics, immunogenetics, neurogenetics, cytogenetics, genetics of viruses, bacterial genetics, and mammalian genetics. The genetics graduate program is supported by the oldest and one of the largest NIH-funded genetics training grants in the country.

The strength of genetics research at Wisconsin derives in large part from the Laboratory of Genetics, but state-of-the-art genetics research is conducted in many campus departments and centers. Training faculty of the genetics Ph.D. program includes 84 trainers selected from 22 campus departments and schools based on the strength of their scholarly genetics research. Genetics Ph.D. students choose one of the 84 training faculty as the graduate thesis advisor and mentor. Faculty trainers of the genetics Ph.D. program include those with academic appointments and research laboratories in the departments of Agronomy, Bacteriology, Biochemistry, Biomolecular Chemistry, Biostatistics and Medical Informatics, Botany, Cell and Regenerative Biology, Genetics, Horticulture, Medical Genetics, Medical Microbiology and Immunology, Medicine, Neuroscience, Neurology, Nutritional Science, Oncology, Ophthalmology and Visual Sciences, Pediatrics, Plant Pathology, and Zoology, as well as the Laboratory of Molecular Biology and the School of Pharmacy.

Genetics graduate students spend time during the first semester of graduate school in the laboratories of three or four faculty trainers, selected by the student. Following rotations, a graduate thesis advisor is chosen by mutual consent of both student and professor. Students are expected to acquire a broad and fundamental knowledge of genetics during their coursework, after which they conduct independent scholarly research based on individual interests and under the guidance and mentoring of the thesis advisor. Formal coursework requirements are modest, and independent study that includes original research is of paramount importance in the program. Students choose an individualized thesis advisory committee of five faculty members (including the thesis advisor) that approves formal coursework and provides scientific and career development advice throughout a student's graduate career.

## FUNDING

Prospective students should see the program website (<http://www.genetics.wisc.edu/PHDProspective.htm>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept prior graduate coursework from other institutions toward the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison toward fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

The program may decide to accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis).

UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten or more

years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### **CREDITS PER TERM ALLOWED**

15 credits

### **PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

### **DOCTORAL MINOR/BREADTH REQUIREMENTS**

Doctoral students must complete a doctoral minor.

### **OVERALL GRADUATE GPA REQUIREMENT**

3.00

### **OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### **PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### **ADVISOR**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

### **ASSESSMENT AND EXAMINATIONS**

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

### **TIME CONSTRAINTS**

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## **LANGUAGE REQUIREMENTS**

No language requirement.

## **ADMISSIONS**

Ph.D. students in genetics choose to attend Wisconsin because of their commitment to the discipline of genetics and because of Wisconsin's strength in that area. Entering students are expected to have a strong background in biology, which should include undergraduate coursework in chemistry, organic chemistry, biochemistry, physics, mathematics through calculus, and statistics. In addition, entering students are expected to have a strong record of independent laboratory research experience.

Admission to the genetics Ph.D. program is highly competitive. A committee of the Laboratory of Genetics reviews applications each fall, invites meritorious applicants for personal interviews each February, and accepts approximately 15 percent of total applications received. An application for admission consists of:

1. a resume,
2. a personal statement that discusses the reasons for pursuing a genetics Ph.D.,
3. an official transcript of coursework sent by the applicant's undergraduate college or university,
4. three or more letters of recommendation,
5. a report from the Educational Testing Service of scores received on the required GRE General Test and on a recommended but not required Subject Test in Biology or Biochemistry,
6. a report, if appropriate, of scores received on either the TOEFL or IELTS exams of English language proficiency, and
7. any other information or documentation that would help the admissions committee evaluate an applicant's potential for success in graduate study.

## **LEARNING OUTCOMES**

### **KNOWLEDGE AND SKILLS**

#### **KNOWLEDGE**

- Students will demonstrate a broad understanding in the principles of genetics and heredity in all organisms. They will develop particular expertise in at least one of the broad subject areas of the doctoral program.
- Students will demonstrate a broad understanding of major current and past theories, research findings and methodologies and techniques in genetics, with particular expertise in their area of concentration, both orally and in writing.
- Students will develop critical thinking skills. They will retrieve and examine scientific literature, evaluate evidence for and against hypotheses, identify knowledge gaps, strengths and weaknesses in existing literature, synthesize knowledge, develop conclusions, and formulate plans for moving the current state of knowledge forward.

#### **RESEARCH**

- Students will develop and complete original research that advances a specific field of study within one of the broad areas subject areas in genetics.

- Students will retrieve, evaluate and interpret professional peer-reviewed literature and use this information to develop theoretical frameworks, testable hypotheses, and predictions for their own research projects.
- Students will design research projects that are feasible, based on well-designed and internally controlled experiments, and address important unsolved problems in genetic or biomedical research.
- Students will conduct independent research, critically evaluate and interpret the resulting data, and, based on that analysis, design future experiments that advance the state of the field.
- Students will write, edit, and assemble manuscripts resulting from their independent research and submit these for publication in peer-reviewed professional journals.

## COMMUNICATION

- Professional scientists are, simultaneously, lifelong students and educators. Students graduating with a master's degree in genetics will have learned how to communicate effectively to diverse audiences in writing, through oral presentations, and during formal and informal discussions.
- Students will write clear and concise research articles for publication in professional journals.
- Students will present at scientific conferences and in both formal and informal seminars.
- Students will master methods of communicating and interacting effectively with professional colleagues, and will prepare successful applications for research grant support.
- Students will articulate their research and its significance both formally and informally to diverse audiences.
- Students will give and receive feedback on communication skills both orally and in writing.
- Students will be provided with opportunities to engage in public outreach and education.

## EDUCATION

- Students will effectively teach the principles of genetics and the methods used in contemporary genetic research.
- Students will receive in-class educational training by serving as teaching assistants for at least one semester of an undergraduate genetics course.
- Students will be provided with opportunities to mentor other students (for example, undergraduate students) in a laboratory research setting. Interested students will have opportunities to perform outreach activities in which they educate school-age students or individuals from other fields on the principles of modern genetics.

## CAREER PREPARATION

- Students will be provided with diverse training that will prepare them for a range of flexible and sustainable careers in, for example, academia, industry, government, science policy, administration, commerce, journalism, law, education and community outreach.
- Students will develop broadly applicable skills in critical thinking and problem solving.
- Students will be provided with opportunities for teamwork, written and oral communication skills and collaborations.

## PROFESSIONAL CONDUCT

- Students will receive training in professional ethics and the responsible conduct of science.
- Students will be trained to use scientific rigor when designing experiments, collecting and analyzing data, and interpreting and reporting results.
- Students will discuss and formulate opinions on the many situations that working scientists encounter involving professional ethics and conflicts of interest.
- Students will receive training in laws, regulation, permits and licenses, occupational health, safety standards and best practices, will demonstrate understanding of such and adhere to compliance.

## ADDITIONAL LEARNING GOALS

- The genetics Ph.D. program also recognizes and strives to meet the student learning goals of the College of Agriculture and Life Sciences, and of the Overarching Learning Goals approved the UW Graduate Faculty Executive Committee: CALS Student Learning Goals The college's goal is to ensure that every student develops:
  - specialized knowledge in at least one discipline, along with an education broad enough to meet the challenges of changing careers and opportunities
  - the ability to think critically and creatively: to synthesize, analyze, and integrate ideas for decision making and problem solving
  - the ability to communicate effectively through writing and speaking by observing, reading, listening, and using appropriate information technologies
  - a global perspective; an appreciation for the interdependencies among individuals and their workplaces, communities, environments, and world; and an understanding of the interrelationships between science and society
  - the ability to work with others in small or large groups, to recognize civic and social responsibilities, and to appreciate the uses of public policy in a democracy
  - a respect for truth, a tolerance for diverse views, and a strong sense of personal and professional ethics

## OVERARCHING DOCTORAL LEVEL LEARNING GOALS APPROVED BY GFEC 11/14/14

Regardless of whether an individual is awarded a master's degree, the doctoral level learning goals are inclusive of the master's level learning goals. Research-based doctoral programs culminate in a dissertation. Professional doctoral programs culminate in a project or performance. In addition, students receiving a doctoral degree from the Graduate School in both research-based and professional programs are expected to achieve the following learning goals by the end of their degree work.

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

# GEOGRAPHY

**Administrative Unit:** Geography

**College/School:** College of Letters & Science

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S. in Geography; M.S. in Cartography and Geographic Information Systems; Ph.D. in Geography

**Minors and Certificates:** Doctoral Minor in Geography; Doctoral Minor in Cartography and Geographic Information Systems

The Department of Geography is a leader in the field of geography and offers exceptional opportunities for graduate education. The department has been consistently rated as one of the best in the country and, for over 100 years, has been the training ground for generations of geographers. The department's strength is reflected in its ability to attract top-caliber students, compete for significant research funding, and publish foundational scholarly work. The department maintains strength across the full spectrum of subfields within the discipline, and is organized into four major thematic areas: physical geography, people and environment, human geography, and cartography/GIS.

Department faculty and graduate students represent a diverse community within which a wide range of perspectives, approaches and research strategies is accommodated. The faculty has long been recognized nationally and internationally for outstanding contributions to geography and beyond. Many graduate students have gone on to prominence within government, industry, and academia and some of the most influential names in geography received their training in Madison.

The department offers a master of science in geography; a master of science in cartography and geographic information systems (including an online-only, non-thesis named option titled GIS development); and a doctor of philosophy in geography. The department also offers a capstone certificate in geographic information systems for students not currently enrolled in a UW–Madison graduate degree program. Capstone certificate applicants are admitted as University Special students through the Division of Continuing Studies (<http://guide.wisc.edu/nondegree>).

Graduate students at the M.S. level are expected to acquire a broad foundation in geography in addition to specializing in one or more areas of concentration. (Students pursuing the GIS development option in cartography/GIS focus on GIS and web map programming skills to bring to the workforce.) Students who earn the M.S. degree are prepared to continue on for the Ph.D., or for applied positions in government agencies, planning organizations, environmental agencies, nongovernmental organizations, and private industry.

The Ph.D. degree is founded primarily upon specialized advanced training and research. Students may specialize in a single subdisciplinary area or a combination of areas and are expected to engage in research leading to a dissertation that makes an original and significant contribution to geographic knowledge and ideas.

Currently 69 students are enrolled in the graduate program: 7 are pursuing the M.S. in geography, 13 are pursuing the M.S. in cartography/GIS; and 49 are completing the Ph.D. The department takes in roughly 10–15 new graduate students each year. In recent years, about half of all incoming graduate students have majored in a subject other than geography, and a third arrived having already received a master's degree from another institution.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Cartography and Geographic Information Systems, Doctoral Minor (p. 350)
- Cartography and Geographic Information Systems, M.S. (p. 351)
- Geography, Doctoral Minor (p. 352)
- Geography, M.S. (p. 353)
- Geography, Ph.D. (p. 354)

## RESOURCES

### FACILITIES

Housed in historic Science Hall, the Department of Geography offers exceptional facilities for advanced study in geography, cartography, and GIS. The department maintains the University Cartographic Laboratory, the Arthur Robinson Map and Air Photo Library, the Geography Library of 65,000 volumes, a computer lab, several computer classrooms, and laboratory facilities specializing in biogeography, biogeochemistry, paleoecology, geomorphology, and soil research. In addition, the building houses the Wisconsin State Cartographer's Office, the History of Cartography Project, and the Gaylord Nelson Institute for Environmental Studies.

Graduate students may supplement their work in the geography department with study in other departments of the university, and there are frequent opportunities for advanced work in interdepartmental seminars. The location of the state capital at Madison makes possible easy contact with the state agencies, and some federal agencies.

## PEOPLE

**Faculty:** Professors Naughton (chair), Cadwallader, Cronon, Kaiser, Mason, Naughton, Olds, Turner, Williams, Zhu; Associate Professors Marin-Spiotta Robertson, Woodward; Assistant Professors Baird, Gibbs, Huang, Moore, Roth, Young

## CARTOGRAPHY AND GEOGRAPHIC INFORMATION SYSTEMS, DOCTORAL MINOR

Geographic information science (GIScience) addresses the fundamental issues surrounding the use of computer technology to help people work with geographic information. GIScience is a field devoted to the acquisition, representation, management, analysis, and visualization of geospatial data. It is relatively new discipline that incorporates geography, cartography, spatial analysis, computer science and other related fields geodesy, cognition, statistics, and mathematics. As an academic discipline, GIScience is concerned with both theoretical and applied issues relating to the creation, analysis, and visualization of spatiotemporal information. It is inherently interdisciplinary in both its methods and applications. Here at UW–Madison, we are committed to the integration of GIScience with substantive geographic questions.

## REQUIREMENTS

All students pursuing a concentrated minor in Cart/GIS are required to connect with a faculty member with whom they can work to establish a reasonable course list to complete 9 credits in the department. That faculty member will, ultimately, be responsible for signing off on completion of the minor. Students interested in the geography minor are encouraged to explore the department's faculty pages (<http://www.geography.wisc.edu/faculty>) and contact one or more faculty with shared research interests.

## ADMISSIONS

For more information, contact: Sharon Kahn, Graduate Program Director ([smkahn@geography.wisc.edu](mailto:smkahn@geography.wisc.edu)).

## PEOPLE

**Faculty:** Professors Naughton (chair), Cadwallader, Cronon, Kaiser, Mason, Naughton, Olds, Turner, Williams, Zhu; Associate Professors Marin-Spiotta Robertson, Woodward; Assistant Professors Baird, Gibbs, Huang, Moore, Roth, Young

## CARTOGRAPHY AND GEOGRAPHIC INFORMATION SYSTEMS, M.S.

The Department of Geography offers a thesis-based master of science in cartography and geographic information systems. In addition, it offers an online, nonthesis, professional named option titled GIS Development in the cartography and geographic information systems M.S.

The department also offers a master of science in geography, a Ph.D. in geography, and a capstone certificate in geographic information systems. Information about facilities, supporting faculty and staff, and program requirements for all graduate programs in the department can be found in the Geography (p. 350) listing in this catalog.

The M.S. in cartography and geographic information systems provides a broad foundation in the theory and application of mapping and geographic information sciences. Students who earn the M.S. degree are prepared to continue on for the Ph.D. in geography, or for positions as GIS analysts in government agencies, planning organizations, environmental agencies, nongovernmental organizations, and private industry.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available named option in GIS Development

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

M.S.: 30 credits

M.S. named option in GIS Development: 32 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

M.S.: 16 credits

M.S. named option in GIS Development: 24 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

M.S.: Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

M.S. named option in GIS Development: 24 credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.S.: With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

M.S. named option in GIS Development: No graduate work from other institutions may be used to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

M.S.: With program approval, students are allowed to count no more than 6 credits of graduate coursework as defined above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.S. named option in GIS Development: With program approval, students may count 8 credits taken as a UW-Madison University Special student. Coursework earned five or more years prior to admission to the option may not be used to satisfy requirements.

### CREDITS PER TERM ALLOWED

M.S.: 15 credits

M.S. named option in GIS Development: 12 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

M.S.:

Code	Title	Credits
GEOG 765 & GEOG 766	Geographical Inquiry and Analysis: An Introduction and Geographical Inquiry and Analysis: Techniques	4
GEOG 370	Introduction to Cartography	4
GEOG/CIV ENGR/ ENVIR ST 377	An Introduction to Geographic Information Systems	4
GEOG 378	Introduction to Geocomputing	4
GEOG 970	Seminar in Geographic Information Science	1-3
Select two of the following:		6-8
GEOG 572	Graphic Design in Cartography	
GEOG 575	Interactive Cartography & Geovisualization	
GEOG 577	Environmental Modeling with GIS	
GEOG 578	GIS Applications	
GEOG 579	GIS and Spatial Analysis	

M.S. named option in GIS Development:

Code	Title	Credits
GEOG 378	Introduction to Geocomputing	4
GEOG 579	GIS and Spatial Analysis	4
GEOG 572	Graphic Design in Cartography	3-4
GEOG 574	Geospatial Database Design and Development	4
GEOG 576	Geospatial Web and Mobile Programming	4
GEOG 575	Interactive Cartography & Geovisualization	4

## OVERALL GRADUATE GPA REQUIREMENT

3.0 GPA required

## PROBATION POLICY

The Department of Geography expects graduate students to progress through a sequence of benchmarks within prescribed time periods. These benchmarks constitute a reasonable rate of accomplishment for full-time students holding teaching or research appointments. The department recognizes that individual circumstances vary, and not all students progressing toward their academic goals will hit the benchmarks exactly. Thus a student's progress is considered unsatisfactory only after a period of time elapses following an unmet benchmark. A student not making satisfactory progress is placed on probation. For detailed information about these benchmarks and triggers for probationary status, please see the department's Criteria for Satisfactory Progress (<http://www.geography.wisc.edu/graduate/Criteria%20for%20Satisfactory%20Progress.pdf>).

## ADVISOR / COMMITTEE

M.S.: Committee must have a minimum of three members, two of whom must be grad faculty (or former grad faculty up to one year after resignation/retirement) and two of whom must be affiliated with the geography department.

M.S. named option in GIS Development: All students are required to conduct a yearly progress report with the program director, scheduled by

December 17 and completed by April 30. Failure to do so will result in a hold being placed on the student's registration.

## ASSESSMENTS AND EXAMINATIONS

M.S.: A formal thesis is required.

M.S. named option in GIS Development: No formal examination is required.

## TIME CONSTRAINTS

For program-specific time constraints, please see Probation Policy above.

## LANGUAGE REQUIREMENTS

No language requirement.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program's website (<http://www.geography.wisc.edu/graduate/application.php>) for details.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in cartography and GIScience.
- Identifies sources and assembles evidence pertaining to questions or challenges in cartography/GIScience.
- Demonstrates understanding of cartography/GIScience in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in cartography/GIScience.
- Communicates clearly in ways appropriate to cartography/GIScience.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Naughton (chair), Cadwallader, Cronon, Kaiser, Mason, Naughton, Olds, Turner, Williams, Zhu; Associate Professors Marin-Spiotta Robertson, Woodward; Assistant Professors Baird, Gibbs, Huang, Moore, Roth, Young

## GEOGRAPHY, DOCTORAL MINOR

Geography studies the interaction between people and their environments including the ways in which the people, the environments, and the interactions all vary from place to place over the earth. Because it is concerned with the character of people and their cultures on the one hand, and with the character of the earth's surface and its resources



on the other, geography is both a social and a natural science. The UW geography program is organized into four major thematic areas: physical geography, people-environmental studies, cartography and GIS, and human geography. There is intentional overlap among the thematic areas and many of our faculty work across subfields (e.g., teach courses in both human and people-environment).

## REQUIREMENTS

All students pursuing a concentrated minor in geography are required to connect with a faculty member with whom they can work to establish a reasonable course list to complete 9 credits in the department. That faculty member will, ultimately, be responsible for signing off on completion of the minor. Students interested in the geography minor are encouraged to explore the department's faculty pages (<http://www.geography.wisc.edu/faculty>) and contact faculty members with shared research interests.

## PEOPLE

**Faculty:** Professors Naughton (chair), Cadwallader, Cronon, Kaiser, Mason, Naughton, Olds, Turner, Williams, Zhu; Associate Professors Marin-Spiotta Robertson, Woodward; Assistant Professors Baird, Gibbs, Huang, Moore, Roth, Young

## GEOGRAPHY, M.S.

The Department of Geography is a leader in the field of geography and offers exceptional opportunities for graduate education. The department has been consistently rated as one of the best in the country and, for over 100 years, has been the training ground for generations of geographers. The department's strength is reflected in its ability to attract top-caliber students, compete for significant research funding, and publish foundational scholarly work. The department maintains strength across the full spectrum of subfields within the discipline, and is organized into four major thematic areas: physical geography, people and environment, human geography, and cartography/GIS.

Department faculty and graduate students represent a diverse community within which a wide range of perspectives, approaches and research strategies is accommodated. The faculty has long been recognized nationally and internationally for outstanding contributions to geography and beyond. Many graduate students have gone on to prominence within government, industry, and academia and some of the most influential names in geography received their training in Madison.

The department offers a master of science in geography; a master of science in cartography and geographic information systems (including an online-only, non-thesis named option titled GIS development); and a doctor of philosophy in geography. The department also offers a capstone certificate in geographic information systems for students not currently enrolled in a UW-Madison graduate degree program. Capstone certificate applicants are admitted as University Special students through the Division of Continuing Studies (<http://guide.wisc.edu/nondegree>).

Graduate students at the M.S. level are expected to acquire a broad foundation in geography in addition to specializing in one or more areas of concentration. (Students pursuing the GIS development option in cartography/GIS focus on GIS and web map programming skills to bring to the workforce.) Students who earn the M.S. degree are prepared to

continue on for the Ph.D., or for applied positions in government agencies, planning organizations, environmental agencies, nongovernmental organizations, and private industry.

The Ph.D. degree is founded primarily upon specialized advanced training and research. Students may specialize in a single subdisciplinary area or a combination of areas and are expected to engage in research leading to a dissertation that makes an original and significant contribution to geographic knowledge and ideas.

Currently 69 students are enrolled in the graduate program: 7 are pursuing the M.S. in geography, 13 are pursuing the M.S. in cartography/GIS; and 49 are completing the Ph.D. The department takes in roughly 10–15 new graduate students each year. In recent years, about half of all incoming graduate students have majored in a subject other than geography, and a third arrived having already received a master's degree from another institution.

## FUNDING

Roughly half the department's graduate students receive financial aid in the form of fellowships, teaching assistantships, or research assistantships. Most forms of financial assistance include eligibility for health insurance coverage and remission of tuition.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of graduate coursework as defined above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

GEOG 765 Geographical Inquiry and Analysis: An Introduction (1 credit) + GEOG 766 Geographical Inquiry and Analysis: Techniques (3 credit); two geography graduate courses 300-level and above: one can double count for breadth, cannot include seminars; two (3 credit) geography seminars with two different faculty members.

## OVERALL GRADUATE GPA REQUIREMENT

3.0 GPA required

## PROBATION POLICY

The Department of Geography expects graduate students to progress through a sequence of benchmarks within prescribed time periods. These benchmarks constitute a reasonable rate of accomplishment for full-time students holding teaching or research appointments. The department recognizes that individual circumstances vary, and not all students progressing toward their academic goals will hit the benchmarks exactly. Thus a student's progress is considered unsatisfactory only after a period of time elapses following an unmet benchmark. A student not making satisfactory progress is placed on probation. For detailed information about these benchmarks and triggers for probationary status, see the department's Criteria for Satisfactory Progress (<http://www.geography.wisc.edu/graduate/Criteria%20for%20Satisfactory%20Progress.pdf>).

## ADVISOR / COMMITTEE

Committee must have a minimum of three members, two of whom must be graduate faculty (or former graduate faculty up to one year after resignation/retirement) and two of whom must be affiliated with the geography department.

## ASSESSMENTS AND EXAMINATIONS

A formal thesis is required.

## TIME CONSTRAINTS

For program-specific time constraints, please see Probation Policy above.

## LANGUAGE REQUIREMENTS

No language requirement.

## ADMISSIONS

The department evaluates applicants to its graduate program on the basis of previous academic record, Graduate Record Exam (GRE) scores, letters of recommendation, and personal statement. The personal statement of research interest is very important to the department in imagining how the student might benefit from pursuing research with the faculty.

Students are accepted in the fall semester only. The deadline for applications wishing to be considered for financial aid is December 15 of the preceding year. (Applicants to the online professional masters named option in cartography/GIS can apply as late as the summer prior to courses beginning. Students in the GIS development named option are not eligible for departmental or university financial aid.) Contact the department for other admissions deadlines.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in geography.
- Identifies sources and assembles evidence pertaining to questions or challenges in geography.
- Demonstrates understanding of geography in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in geography.
- Communicates clearly in ways appropriate to geography.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Naughton (chair), Cadwallader, Cronon, Kaiser, Mason, Naughton, Olds, Turner, Williams, Zhu; Associate Professors Marin-Spiotta, Robertson, Woodward; Assistant Professors Baird, Gibbs, Huang, Moore, Roth, Young

## GEOGRAPHY, PH.D.

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Department faculty and graduate students represent a diverse community within which a wide range of perspectives, approaches and research strategies is accommodated. The faculty has long been recognized nationally and internationally for outstanding contributions to geography and beyond. Many graduate students have gone on to prominence within government, industry, and academia and some of the most influential names in geography received their training in Madison.

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The Ph.D. degree is founded primarily upon specialized advanced training and research. Students may specialize in a single subdisciplinary area or a combination of areas and are expected to engage in research leading to a dissertation that makes an original and significant contribution to geographic knowledge and ideas.

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## FUNDING

Roughly half the department's graduate students receive financial aid in the form of fellowships, teaching assistantships, or research assistantships. Most forms of financial assistance include eligibility for health insurance coverage and remission of tuition.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of graduate coursework as defined above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

GEOG 765 Geographical Inquiry and Analysis: An Introduction (1 cr); two (3 cr) geography seminars with two different faculty members (cannot use seminars completed as M.S. student); skills coursework (6 credits of intermediate or advanced courses)—any coursework completed as a graduate student can be used. Competence in non-English language OR quantitative and/or qualitative skills.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Any coursework completed as a UW–Madison geography department graduate student may be used toward the minor. Option A—9 credits in one, non-geography department; Option B—9 credits in 2+ non-geography departments.

### OVERALL GRADUATE GPA REQUIREMENT

3.0 GPA required

### PROBATION POLICY

The Department of Geography expects graduate students to progress through a sequence of benchmarks within prescribed time periods. These benchmarks constitute a reasonable rate of accomplishment for full-time students holding teaching or research appointments. The department

recognizes that individual circumstances vary, and not all students progressing toward their academic goals will hit the benchmarks exactly. Thus a student's progress is considered unsatisfactory only after a period of time elapses following an unmet benchmark. A student not making satisfactory progress is placed on probation. For detailed information about these benchmarks and triggers for probationary status, see the department's Criteria for Satisfactory Progress (<http://www.geography.wisc.edu/graduate/Criteria%20for%20Satisfactory%20Progress.pdf>).

### ADVISOR / COMMITTEE

Committee must have a minimum of five members. Four must be graduate faculty (or former graduate faculty up to one year after resignation/retirement) and at least two of whom must be Geography faculty. At least one must be non-geography (i.e., not affiliated with the geography program).

### ASSESSMENTS AND EXAMINATIONS

Students must pass a general exam covering one of the breadth areas and a specific exam devised and graded by individual's committee. Student must orally defend dissertation proposal before a thesis committee.

### TIME CONSTRAINTS

For program-specific time constraints, please see Probation Policy above.

### LANGUAGE REQUIREMENTS

Competence in a non-English language can be used to fulfill skills requirement (see Program-Specific Courses Required above).

## ADMISSIONS

The department evaluates applicants to its graduate program on the basis of previous academic record, Graduate Record Exam (GRE) scores, letters of recommendation, and personal statement. The personal statement of research interest is very important to the department in imagining how the student might benefit from pursuing research with the faculty.

Students are accepted in the fall semester only. The deadline for applications wishing to be considered for financial aid is December 15 of the preceding year. (Applicants to the online professional masters named option in cartography/GIS can apply as late as the summer prior to courses beginning. Students in the GIS development named option are not eligible for departmental or university financial aid.) Contact the department for other admissions deadlines.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS GOALS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within geography.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within geography.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of geography to society.

- Communicates complex ideas in a clear and understandable manner.

## PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Naughton (chair), Cadwallader, Cronon, Kaiser, Mason, Naughton, Olds, Turner, Williams, Zhu; Associate Professors Marin-Spiotta Robertson, Woodward; Assistant Professors Baird, Gibbs, Huang, Moore, Roth, Young

## GEOSCIENCE

**Administrative Unit:** Geoscience

**College/School:** College of Letters & Science

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The Department of Geoscience provides opportunity for advanced study leading to the master of science and the doctor of philosophy degrees. Broad research interests and numerous fields of specialization among the members of the faculty provide research opportunities in all major fields of earth science including geochemistry, geophysics, hydrogeology, microbial geoscience, mineralogy, nano-geoscience, paleontology, petrology, quaternary geology, sedimentology, structural geology, and tectonics.

The graduate student is expected to acquire a broad foundation in geoscience and in the supporting sciences before specializing. Courses are selected by the student in consultation with a three-member guidance and evaluation committee. Individual research and scholarship is required in all graduate work. It is expected that the candidate for an advanced degree will make original contributions, develop new ideas, and complete a dissertation suitable for publication in a peer-reviewed journal, book, or report. Students may also obtain a joint master's degree in geoscience and water resources management if approved by both programs and the Graduate School.

The department maintains a variety of cutting-edge laboratories in Lewis G. Weeks Hall for the Geological Sciences. Strong connections also exist between the geoscience and geological engineering programs. Library and research facilities are available for advanced work in all important branches of the science. Geological survey offices in the Madison area, both state and federal, provide opportunities for cooperation with Survey geologists and the use of Survey facilities.

The program prepares students for teaching and research in academic positions, research work in state and federal organizations, and research and development in industry. The department coordinates interviews with potential employers several times during the year and maintains information on career placement. Students are actively involved in teaching and research programs and other scholarly activities of the department.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Geoscience, Doctoral Minor (p. 357)
- Geoscience, M.S. (p. 357)
- Geoscience, Ph.D. (p. 359)

### PEOPLE

**Faculty:** Professors Bahr, Brown, Carroll, DeMets, Feigl, Goodwin, Johnson, Kelly, Roden, Singer, Thurber, Tikoff, Tobin, Valley, Wang; Associate Professors Meyers, Peters, Xu; Assistant Professors Cardiff, Marcott, Zoet

## GEOSCIENCE, DOCTORAL MINOR

The Geoscience minor provides students in the natural sciences with an opportunity to broaden and deepen their understanding of traditional areas of geoscience such as sedimentary geology, hydrogeology, geophysics, mineralogy, petrology, geochemistry, structural geology, and surface processes. The minor also offers coursework that connects to other earth and environmental science programs on campus including, for example, participation in the Nelson Institute for Environmental Studies and close collaboration with the College of Engineering to jointly train future geological engineers. We also offer courses that deal with societal problems including climate change, geohazards, the environment, and natural resources; and also courses that deal with big questions such as the origin of life in the solar system, geologic triggers for global biotic changes, and the deep-seated processes that drive earthquakes and volcanic eruptions. Regardless of the focus of the minor, the key learning outcome is for the student to understand how geoscientists approach problems, including development and evaluation of scientific hypotheses, ideas, and concepts within Geoscience. Our graduate courses require students to communicate complex ideas in a clear and understandable manner, an ability that will allow them to engage with and communicate with research professionals in Geoscience.

### REQUIREMENTS

Our minor requires a minimum of 9 credits in courses involving one or more faculty from Geoscience. The coursework may focus on a single geoscience discipline (e.g. one of the traditional areas listed in the Overview), or may be multi-disciplinary across our various coursework options. Fulfillment of this option requires the approval of the graduate studies program coordinator.

### ADMISSIONS

Contact Eric Roden, Professor of Geoscience.

### PEOPLE

**Faculty:** Professors Bahr, Brown, Carroll, DeMets, Feigl, Goodwin, Johnson, Kelly, Roden, Singer, Thurber, Tikoff, Tobin, Valley, Wang; Associate Professors Meyers, Peters, Xu; Assistant Professors Cardiff, Marcott, Zoet

## GEOSCIENCE, M.S.

The Department of Geoscience provides opportunity for advanced study leading to the master of science and the doctor of philosophy degrees. Broad research interests and numerous fields of specialization among the members of the faculty provide research opportunities in all major fields of earth science including geochemistry, geophysics, hydrogeology, microbial geoscience, mineralogy, nano-geoscience, paleontology, petrology, quaternary geology, sedimentology, structural geology, and tectonics.

The graduate student is expected to acquire a broad foundation in geoscience and in the supporting sciences before specializing. Courses are selected by the student in consultation with a three-member guidance and evaluation committee. Individual research and scholarship is required

in all graduate work. It is expected that the candidate for an advanced degree will make original contributions, develop new ideas, and complete a dissertation suitable for publication in a peer-reviewed journal, book, or report. Students may also obtain a joint master's degree in geoscience and water resources management if approved by both programs and the Graduate School.

The department maintains a variety of cutting-edge laboratories in Lewis G. Weeks Hall for the Geological Sciences. Strong connections also exist between the geoscience and geological engineering programs. Library and research facilities are available for advanced work in all important branches of the science. Geological survey offices in the Madison area, both state and federal, provide opportunities for cooperation with Survey geologists and the use of Survey facilities.

The program prepares students for teaching and research in academic positions, research work in state and federal organizations, and research and development in industry. The department coordinates interviews with potential employers several times during the year and maintains information on career placement. Students are actively involved in teaching and research programs and other scholarly activities of the department.

## FUNDING

Financial assistance sufficient to meet the ordinary expenses of graduate school is available to qualified students in the form of fellowships and teaching or research assistantships. Prospective students should contact the department for information on available financial aid. All applicants must take the Graduate Record Exam (GRE).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 15 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

7 credits from a UW-Madison undergraduate degree are allowed to count toward the degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Graduate students may enter the degree program with a bachelor's degree in geology or a related earth science, or some other field relevant to the intended field of specialization. In addition to meeting the minimum admission requirements of the Graduate School, candidates must have had one year each of college chemistry, physics, and calculus. Graduate students in paleobiology are allowed to substitute statistics courses for the calculus requirement. A student entering the program with an undergraduate degree in geology is expected to have completed a 6–8 credit course in geologic field mapping.

Applicants will not normally be admitted with deficiencies in more than two one-semester courses in the required cognate subjects (for example, a prospective student could be missing one semester of physics and one semester of calculus). Such deficiencies should be removed within the first year of graduate study. A deficiency in field geology normally must be removed before commencing graduate study. Promising students with excessive deficiencies may be advised to take courses as a Special student before becoming eligible to enter graduate studies. They cannot, however, receive financial aid while a Special student.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the scientific theories, scientific hypotheses, research methods, and approaches to inquiry or schools of practice in geoscience.
- Identifies sources and assembles evidence pertaining to questions or challenges in geoscience.
- Demonstrates understanding of geoscience in historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in geoscience.
- Communicates clearly in ways appropriate to the geological sciences.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Bahr, Brown, Carroll, DeMets, Feigl, Goodwin, Johnson, Kelly, Roden, Singer, Thurber, Tikoff, Tobin, Valley, Wang; Associate Professors Meyers, Peters, Xu; Assistant Professors Cardiff, Marcott, Zoet

## GEOSCIENCE, PH.D.

The Department of Geoscience provides opportunity for advanced study leading to the master of science and the doctor of philosophy degrees. Broad research interests and numerous fields of specialization among the members of the faculty provide research opportunities in all major fields of earth science including geochemistry, geophysics, hydrogeology, microbial geoscience, mineralogy, nano-geoscience, paleontology, petrology, quaternary geology, sedimentology, structural geology, and tectonics.

The graduate student is expected to acquire a broad foundation in geoscience and in the supporting sciences before specializing. Courses are selected by the student in consultation with a three-member guidance and evaluation committee. Individual research and scholarship is required in all graduate work. It is expected that the candidate for an advanced degree will make original contributions, develop new ideas, and complete a dissertation suitable for publication in a peer-reviewed journal, book, or report. Students may also obtain a joint master's degree in geoscience and water resources management if approved by both programs and the Graduate School.

The department maintains a variety of cutting-edge laboratories in Lewis G. Weeks Hall for the Geological Sciences. Strong connections also exist between the geoscience and geological engineering programs. Library and research facilities are available for advanced work in all important branches of the science. Geological survey offices in the Madison area, both state and federal, provide opportunities for cooperation with Survey geologists and the use of Survey facilities.

The program prepares students for teaching and research in academic positions, research work in state and federal organizations, and research and development in industry. The department coordinates interviews with potential employers several times during the year and maintains information on career placement. Students are actively involved in teaching and research programs and other scholarly activities of the department.

## FUNDING

Financial assistance sufficient to meet the ordinary expenses of graduate school is available to qualified students in the form of fellowships and teaching or research assistantships. Prospective students should contact the department for information on available financial aid. All applicants must take the Graduate Record Exam (GRE).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

**MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT**

51 credits

**MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT**

32 credits

**MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT**

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

**PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

With program approval, students are allowed to count no more than 15 credits of graduate coursework from other institutions. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

7 credits from a UW–Madison undergraduate degree are allowed to count toward the degree. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

**CREDITS PER TERM ALLOWED**

15 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

**DOCTORAL MINOR/BREADTH REQUIREMENTS**

Doctoral students must complete a doctoral minor.

**OVERALL GRADUATE GPA REQUIREMENT**

3.00

**OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

**PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

**ADVISOR**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

**ASSESSMENT AND EXAMINATIONS**

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

**TIME CONSTRAINTS**

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

**LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

**ADMISSIONS**

Graduate students may enter the degree program with a bachelor's degree in geology or a related earth science, or some other field relevant to the intended field of specialization. In addition to meeting the minimum admission requirements of the Graduate School, candidates must have had one year each of college chemistry, physics, and calculus. Graduate students in paleobiology are allowed to substitute statistics courses for the calculus requirement. A student entering the program with an undergraduate degree in geology is expected to have completed a 6–8 credit course in geologic field mapping.

Applicants will not normally be admitted with deficiencies in more than two one-semester courses in the required cognate subjects (for example, a prospective student could be missing one semester of physics and one semester of calculus). Such deficiencies should be removed within the first year of graduate study. A deficiency in field geology normally must be removed before commencing graduate study. Promising students with excessive deficiencies may be advised to take courses as a Special student before becoming eligible to enter graduate studies. They cannot, however, receive financial aid while a Special student.



## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Formulates and plans original research.
- Formulates scientific hypotheses, ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within geoscience.
- Creates research and scholarship that makes a substantive contribution.
- Demonstrates breadth within their learning experiences, gaining a broad awareness of the status of contemporary research beyond the student's area of specialization.
- Advances contributions of geoscience to society.
- Communicates complex ideas in a clear and understandable manner, including the ability to engage and communicate with research professionals in geoscience.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Bahr, Brown, Carroll, DeMets, Feigl, Goodwin, Johnson, Kelly, Roden, Singer, Thurber, Tikoff, Tobin, Valley, Wang; Associate Professors Meyers, Peters, Xu; Assistant Professors Cardiff, Marcott, Zoet

# GERMAN, NORDIC, AND SLAVIC

**Administrative Unit:** German, Nordic and Slavic

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A. in German; M.A. in Scandinavian Studies; M.A. in Slavic Languages and Literatures; Ph.D. in German; Ph.D. in Scandinavian Studies; Ph.S. in Slavic Languages and Literatures

**Minors and Certificates:** Doctoral Minor in German; Doctoral Minor in Scandinavian Studies; Doctoral Minor in Slavic Languages and Literatures

## GERMAN

The graduate program in the German is recognized internationally for its comprehensive coverage of German studies and the thorough preparation of candidates for its graduate degrees. The German program is consistently among the most highly rated in the country and is near the top of the list of North American institutions in number of total graduate degrees granted in German. Graduates teach in colleges and universities across the country and around the world, affirming the department's reputation and significance.

The department is the home of the quarterly *Monatshefte* (<http://monatshefte.org>), founded in 1899 and one of the leading peer-reviewed international scholarly journals in the field of German literature and culture. The *Journal of Germanic Linguistics* (<http://german.lss.wisc.edu/~sgl/journal.html>), journal of the Society for Germanic Linguistics, is also produced in the department. In addition, the department provides an editorial home for *Diachronica* (<http://benjamins.com/catalog/journals/dia/main>), an international journal covering all aspects of historical and comparative linguistics. The Max Kade Institute (<http://mki.wisc.edu>) for German-American Studies, founded in 1983, is an international center for research on German-American history, language, and culture. Its research and outreach missions aim to provide better understanding of how German-speaking immigrants to this country helped shape their new environment and how they have been shaped by it. The Center for German and European Studies (<http://daadcenter.wisc.edu>) (CGES), one of a handful of DAAD-sponsored centers in the US, is helping educate a new generation of experts on Germany and the new Europe across a wide variety of disciplines. It supports collaborative research and teaching of interdisciplinary and graduate seminars, and provides fellowships for graduate students interested in German and European studies.

## SCANDINAVIAN STUDIES

Scandinavian studies is in the oldest such department in the Americas, tracing its roots to 1875. Department faculty have received numerous awards and other marks of recognition for their teaching and scholarship. The department offers the master of arts and the doctor of philosophy in Scandinavian studies. A doctoral minor is also available. Graduate students must be fluent in one Scandinavian language and specialize in one particular area, but they may expect to gain a knowledge of the wider Nordic region during their studies. The program offers the possibility to attain a broad education in Scandinavian culture that has proven to be extremely useful in students' professional careers. Students will become well-versed in theory and methodology as well as in cultural history. The department possesses particular strengths in Scandinavian literature, Old Norse philology, and Nordic folklore. Within these broader categories,

students may pursue interests in such topics as, mythology, Sámi studies, saint's lives, modernism, sagas, gender criticism, immigration studies, national identity—to name only a few. Languages offered in the department include Danish, Finnish, Icelandic, Norwegian, Sámi, and Swedish. The department has an excellent record of placing its Ph.D. graduates in good positions in the field.

## SLAVIC LANGUAGES AND LITERATURES

Slavic languages and literature at the University of Wisconsin–Madison is a national leader of doctoral programs in the field, and welcomes students with a B.A./B.S. or M.A. who are interested in all areas of Russian and comparative Slavic prose, poetry, drama, and philosophy. The curriculum offers breadth and depth in a variety of areas of Slavic philology, literature, and culture, and is known for offering a balanced approach to training in teaching, writing, and research. The program is fortunate to count among its faculty, specialists in Czech, Polish, Russian, and Serbo-Croatian languages, literature, and culture, award-winning authors and teachers, and members of editorial boards of leading journals and publication series. Information regarding faculty biographical sketches are available on the program website. In addition to their excellence in teaching and research, professors are unparalleled mentors to graduate students. Students work closely with faculty members on writing, teaching, and publishing. Graduate students are expected to produce publishable articles during their graduate careers, and are provided the guidance and feedback to do so.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- German, Doctoral Minor (p. 363)
- German, M.A. (p. 363)
- German, Ph.D. (p. 365)
- Russian, Doctoral Minor (p. 367)
- Scandinavian Studies, Doctoral Minor (p. 367)
- Scandinavian Studies, M.A. (p. 367)
- Scandinavian Studies, Ph.D. (p. 369)
- Slavic Languages and Literatures, Doctoral Minor (p. 371)
- Slavic Languages and Literatures, M.A. (p. 371)
- Slavic Languages and Literatures, Ph.D. (p. 373)

## PEOPLE

### GERMAN

**Faculty:** Professors Vanderwal Taylor (chair), Adler, Chavez, Gross, Howell, James, Kluge, Loudon, Potter, Salmons, Silberman; Associate Professors Calomino, Mani, Moedersheim; Assistant Professors Eldridge, Hollander, Klocke, Li; Faculty Associate Schueller

### SCANDINAVIAN STUDIES

**Faculty:** Professors Brantly, DuBois, Leary, Wolf; Associate Professor Allen (chair); Assistant Professor Krouk

### SLAVIC LANGUAGES AND LITERATURES

**Faculty:** Professors Bethea, Danaher, Dolinin, Evans-Romaine, Filipowicz, Longinovic, van de Water; Associate Professors Reynolds, Shevelenko

## GERMAN, DOCTORAL MINOR

### REQUIREMENTS

The department offers an external doctoral minor. Doctoral students outside the department may obtain a minor in German by taking three graduate-level courses, at least two of them at the 600 level or above.

Interested students should consult with the graduate secretary [mkmears@wisc.edu](mailto:mkmears@wisc.edu), and have the minor plan approved by the chair.

### PEOPLE

**Faculty:** Professors Vanderwal Taylor (chair), Adler, Chavez, Gross, Howell, James, Kluge, Loudon, Potter, Salmons, Silberman; Associate Professors Calomino, Mani, Moedersheim; Assistant Professors Eldridge, Hollander, Klocke, Li; Faculty Associate Schueller

## GERMAN, M.A.

The department offers curricula leading to the master of arts and the doctor of philosophy degrees in German.

The M.A. degree in German requires 30 credits of course work at the graduate level (10 courses) approved by the graduate advisor and the Masters examination. For details, see the program description on the department website ([http://german.lss.wisc.edu/new\\_web/?q=node/121](http://german.lss.wisc.edu/new_web/?q=node/121)) or contact the graduate secretary, [mkmears@wisc.edu](mailto:mkmears@wisc.edu).

The Ph.D. requires an additional eight courses (24 credits) for a total of 18 courses (54 credits) [for students entering with an M.A. from another institution: a total of 12 courses/36 credits, of which up to two can be transfer courses as allowed by graduate advisor], an external doctoral minor, proof of proficiency in another foreign language, and a preliminary qualifying exam in preparation for writing a Ph.D. thesis. Students must pass the Goethe Certificate C1 (German-language proficiency) before advancing to the doctoral preliminary examination. For details, see the program description on the department Web site or contact the graduate secretary, [mkmears@wisc.edu](mailto:mkmears@wisc.edu).

The department offers a broadly inclusive and flexible curriculum in the entire range of medieval through contemporary literature and culture, a full spectrum of linguistics and philology, and a program in Dutch language, literature, and culture. The program is unsurpassed in comprehensive representation of the entire field of the study of German through individual faculty members' specializations and research publications, including: early modern and medieval studies; film and media studies; multicultural literature and cosmopolitanism; Gegenwartsliteratur; literary and cultural theory; Holocaust studies; poetics, stylistics, and narratology; 18th-century studies; literature in its sociocultural context; literary and cultural theory; Dutch literature and linguistics; historical and synchronic linguistics; applied linguistics, second language acquisition, and foreign language education. Offerings include interdisciplinary areas such as literature and other arts (especially image/text, visual culture, and literature/music), German-Americana, literature and philosophy, and German–Jewish relations.

Graduate students are encouraged to pursue inter- and multidisciplinary work beyond the Department of German in such areas as art history,

communication arts/cinema, comparative literature, history, linguistics, musicology, Scandinavian studies, visual studies, and women and gender studies. The department cooperates closely with the interdepartmental programs in European studies, medieval studies, Jewish studies, and second language acquisition.

### FUNDING

Financial support is competitive. In general, the application deadline for financial support is December 20. Graduate applicants admitted to the program are eligible for a limited number of comprehensive multiyear financial guarantees. These include teaching and project assistantships as well as fellowships. In addition to university fellowships, the department may award a small number of distinguished fellowships, and offers a number of project assistantships, including research and editorial positions.

### REQUIREMENTS

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT.

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students are generally not allowed to count graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval students are allowed no more than 7 credits of coursework numbered 600 or above taken as a UW undergraduate. In no case will coursework be considered that was earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 600 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
<b>Required Courses</b>		
GERMAN 650	History of the German Language	3
Select one of the following:		3
GERMAN 612	German Literary Movements Since 1750	
GERMAN 703	18th Century German Literature	
GERMAN 708	19th Century German Literature	
GERMAN 709	German Literature of the 20th and 21st Centuries	
GERMAN 720	College Teaching of German	1
GERMAN 722	Theory of Teaching German	2

Two courses (6 cr) taken outside the department may count toward M.A. coursework.

## OVERALL GRADUATE GPA REQUIREMENT

3.5 GPA required.

## OTHER GRADE REQUIREMENTS

If a student's GPA falls below 3.50 in any given semester, the cumulative average by the end of the following full-time semester must be 3.50.

The grade of C is considered unsatisfactory in the Department of German; it is not counted in fulfilling the course requirements and may not be offset by a grade of A or AB in another course.

An incomplete received in the Fall Semester must be removed by the end of the following summer session. An incomplete received in the Spring Semester must be removed by the end of the following Fall Semester. An incomplete received in the summer session must be removed within six months. Failure to meet these deadlines constitutes unsatisfactory progress.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

Students admitted on probation must maintain a GPA of at least 3.50 in graduate work done during each of their first two full-time semesters or the equivalent at this university, otherwise they will be dropped from

the program. After performing satisfactorily during the probation period, students are expected to perform as well as students granted admission in full standing.

## ADVISOR / COMMITTEE

All incoming M.A. candidates are advised by the department graduate advisor (DGA) during the first year of study. M.A. candidates are expected to select (by mutual consent) their individual graduate advisor during the third semester of coursework. The individual graduate advisor is likely to be chair of the M.A. examination committee, the Ph.D. preliminary examination committee, and the dissertation committee.

## ASSESSMENTS AND EXAMINATIONS

Students entering the program at the M.A. level are required to take the Goethe Certificate C1 (German-language proficiency) during the first year of their studies.

At least one substantial course contribution written in German is required each year during the entire period of a student's graduate coursework. This might be a paper or a lengthy take-home examination. If a student is taking only courses outside the department in a given year, the requirement will be waived for that year.

An M.A. examination with a written and oral component.

## TIME CONSTRAINTS

The M.A. examination must be completed by the end of the fourth semester in the German program.

## LANGUAGE REQUIREMENTS

Please see "Assessments and Examinations" above.

## ADMISSIONS

Admission to the graduate program in German is highly competitive. Although most entering graduate students complete their undergraduate work at North American universities and colleges, a small number of international students regularly join the department.

Applicants are expected to demonstrate a strong record of prior and potential academic achievement in addition to excellent German language skills. Applicants with a B.A. in German must have a cumulative undergraduate GPA of at least 3.0 (on a 4.0 scale) on the equivalent of the last 60 semester credits and a GPA of at least 3.50 in German courses beyond the second-year level. Students with an M.A. in German must have a GPA in graduate work of at least 3.7 on a 4.0 scale. In special cases, applicants who do not fulfill the above expectations may be admitted on probation.

All applicants must submit official transcripts of all university course work (or equivalents, including study abroad), list of courses in progress, Graduate Record Exam (GRE) scores, a personal statement explaining the reasons for graduate study, a current c.v. or resume, a writing sample in German (5–15 pages), and three letters of recommendation that evaluate previous study and potential for graduate study. International applicants must also provide TOEFL, MELAB, or IELTS scores, a financial statement form included with the application materials, and, if applying for a teaching assistantship, a ten-minute recording with a sample of the applicant's spoken English.

Application to the UW–Madison Graduate School is an online procedure, with supporting documentation mailed to the Department of German.

Applicants should contact the department early in the fall if they wish additional information. Visits to the UW–Madison campus are welcomed by faculty and graduate students.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.
- Recognizes and practices principles of effective foreign language teaching.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

### ADDITIONAL LEARNING GOALS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social or global context.

## PEOPLE

**Faculty:** Professors Vanderwal Taylor (chair), Adler, Chavez, Gross, Howell, James, Kluge, Loudon, Potter, Salmons, Silberman; Associate Professors Calomino, Mani, Moedersheim; Assistant Professors Eldridge, Hollander, Klocke, Li; Faculty Associate Schueller

## GERMAN, PH.D.

The department offers curricula leading to the master of arts and the doctor of philosophy degrees in German.

The M.A. degree in German requires 30 credits of course work at the graduate level (10 courses) approved by the graduate advisor and the Masters examination. For details, see the program description on the department website ([http://german.lss.wisc.edu/new\\_web/?q=node/121](http://german.lss.wisc.edu/new_web/?q=node/121)) or contact the graduate secretary, [mkmears@wisc.edu](mailto:mkmears@wisc.edu).

The Ph.D. requires an additional eight courses (24 credits) for a total of 18 courses (54 credits) [for students entering with an M.A. from another institution: a total of 12 courses/36 credits, of which up to two can be transfer courses as allowed by graduate advisor], an external doctoral minor, proof of proficiency in another foreign language, and a preliminary qualifying exam in preparation for writing a Ph.D. thesis. Students must pass the Goethe Certificate C1 (German-language proficiency) before advancing to the doctoral preliminary examination. For details, see the program description on the department Web site or contact the graduate secretary, [mkmears@wisc.edu](mailto:mkmears@wisc.edu).

The department offers a broadly inclusive and flexible curriculum in the entire range of medieval through contemporary literature and

culture, a full spectrum of linguistics and philology, and a program in Dutch language, literature, and culture. The program is unsurpassed in comprehensive representation of the entire field of the study of German through individual faculty members' specializations and research publications, including: early modern and medieval studies; film and media studies; multicultural literature and cosmopolitanism; *Gegenwartsliteratur*; literary and cultural theory; Holocaust studies; poetics, stylistics, and narratology; 18th-century studies; literature in its sociocultural context; literary and cultural theory; Dutch literature and linguistics; historical and synchronic linguistics; applied linguistics, second language acquisition, and foreign language education. Offerings include interdisciplinary areas such as literature and other arts (especially image/text, visual culture, and literature/music), German-Americana, literature and philosophy, and German–Jewish relations.

Graduate students are encouraged to pursue inter- and multidisciplinary work beyond the Department of German in such areas as art history, communication arts/cinema, comparative literature, history, linguistics, musicology, Scandinavian studies, visual studies, and women and gender studies. The department cooperates closely with the interdepartmental programs in European studies, medieval studies, Jewish studies, and second language acquisition.

## FUNDING

Financial support is competitive. In general, the application deadline for financial support is December 20. Graduate applicants admitted to the program are eligible for a limited number of comprehensive multiyear financial guarantees. These include teaching and project assistantships as well as fellowships. In addition to university fellowships, the department may award a small number of distinguished fellowships, and offers a number of project assistantships, including research and editorial positions.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

Ph.D.: 69 credits (including 30 credits for the M.A. earned in the department + 9 credits minimum for Ph.D. minor + 6 dissertator credits)

Ph.D. (for graduates entering with M.A. in German from another institution): 51 credits (36 credits + 9 credits minimum for Ph.D. minor + 6 dissertator credits)

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Ph.D.: Half of the degree coursework, 35 credits out of 69 total credits must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the University's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>). This includes the 30 credits for the M.A. earned in the Department.

Ph.D. (for graduates entering with M.A. in German from another institution): Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students are generally not allowed to count graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the Ph.D. degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 600 or above taken as a UW–Madison University Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Students who completed the M.A. in German at the UW–Madison must complete 8 additional graduate-level courses (24 credits; more courses/credits if one or two of the M.A. courses were taken outside the department);

Students who enter the Ph.D. program with an M.A. in German from elsewhere complete a minimum of 12 graduate-level course (36 cr), of which two (6 cr) may be transferred from previous work, if suitable, including the teaching assistant training program and its academic component (GERMAN 720 College Teaching of German/GERMAN 722 Theory of Teaching German).

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.5 GPA required for courses taken in the department; 3.00 GPA for work done in the minor.

## OTHER GRADE REQUIREMENTS

If a student's GPA falls below 3.50 in any given semester, the cumulative average by the end of the following full-time semester must be 3.50.

The grade of C is considered unsatisfactory in the Department of German: it is not counted in fulfilling the course requirements and may not be offset by a grade of A or AB in another course.

An incomplete received in the Fall Semester must be removed by the end of the following summer session. An incomplete received in the Spring Semester must be removed by the end of the following Fall Semester. An incomplete received in the summer session must be removed within six months. Failure to meet these deadlines constitutes unsatisfactory progress.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

A semester GPA below 3.5 will result in the student being placed on academic probation. If a semester GPA of 3.5 is not attained during the subsequent semester, the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

Students joining the program with an M.A. degree will either be advised by the department graduate advisor (DGA) and choose their individual advisor before the end of their second semester of coursework in consultation with the DGA, or be assigned an individual advisor when they enter the program. The individual advisor will be the chair of the Ph.D. preliminary examination committee and the dissertation committee.

## ASSESSMENTS AND EXAMINATIONS

Students must pass the Goethe Certificate C1 (German-language proficiency) before advancing to the doctoral preliminary exams.

At least one substantial course contribution written in German is required each year during the entire period of a student's graduate coursework. This might be a paper or a lengthy take-home examination. If a student is taking only courses outside the department in a given year, the requirement will be waived for that year.

An oral preliminary examination and a dissertation proposal must be completed after all required Ph.D. coursework.

## TIME CONSTRAINTS

Ph.D. candidates should take the two-hour oral preliminary examination no sooner than upon completion of the second semester of the Ph.D. coursework and may take it no later than three weeks after the beginning of the fifth full-time semester (or its equivalent) after the M.A.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

In addition to German students must demonstrate reading knowledge in a second foreign language, equivalent to at least four semesters of college work in that language, before proceeding to the preliminary examination.

## ADMISSIONS

Admission to the graduate program in German is highly competitive. Although most entering graduate students complete their undergraduate work at North American universities and colleges, a small number of international students regularly join the department.

Applicants are expected to demonstrate a strong record of prior and potential academic achievement in addition to excellent German language skills. Applicants with a B.A. in German must have a cumulative undergraduate GPA of at least 3.0 (on a 4.0 scale) on the equivalent of the last 60 semester credits and a GPA of at least 3.50 in German courses beyond the second-year level. Students with an M.A. in German must have a GPA in graduate work of at least 3.7 on a 4.0 scale. In special cases, applicants who do not fulfill the above expectations may be admitted on probation.

All applicants must submit official transcripts of all university course work (or equivalents, including study abroad), list of courses in progress, Graduate Record Exam (GRE) scores, a personal statement explaining the reasons for graduate study, a current c.v. or resume, a writing sample in German (5–15 pages), and three letters of recommendation that evaluate previous study and potential for graduate study. International applicants must also provide TOEFL, MELAB, or IELTS scores, a financial statement form included with the application materials, and, if applying for a teaching assistantship, a ten-minute recording with a sample of the applicant's spoken English.

Application to the UW–Madison Graduate School is an online procedure, with supporting documentation mailed to the Department of German. Applicants should contact the department early in the fall if they wish additional information. Visits to the UW–Madison campus are welcomed by faculty and graduate students.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research and scholarship that makes a substantive contribution.
- Communicates complex ideas in a clear and understandable manner.
- Recognizes and practices principles of effective foreign language teaching and program coordination.
- Has adequate German language skills to function effectively in a professional capacity consistent with a Ph.D. in the field.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.
- Functions well at professional conferences: presents research, engages in professional dialogue.

## PEOPLE

**Faculty:** Professors Vanderwal Taylor (chair), Adler, Chavez, Gross, Howell, James, Kluge, Loudon, Potter, Salmons, Silberman; Associate Professors Calomino, Mani, Moedersheim; Assistant Professors Eldridge, Hollander, Klocke, Li; Faculty Associate Schueller

## RUSSIAN, DOCTORAL MINOR

## SCANDINAVIAN STUDIES, DOCTORAL MINOR

### REQUIREMENTS

A prospective minor in Scandinavian studies must have a program approved in advance by the graduate advisor, and is urged to discuss the entire doctoral program with this advisor at the earliest possible opportunity. In general, the requirements for the minor are a minimum of 12 credits in Scandinavian studies at the graduate level, and reading proficiency in one Scandinavian language (including Old or modern Icelandic) or in Finnish or Sámi.

## PEOPLE

**Faculty:** Professors Brantly, DuBois, Leary, Wolf; Associate Professor Allen (Chair); Assistant Professor Krouk

## SCANDINAVIAN STUDIES, M.A.

Candidates for the master of arts in Scandinavian studies will specialize in one and only one of the following three fields: literature, philology, or area studies.

Scandinavian studies is in the oldest such department in the Americas, tracing its roots to 1875. Department faculty have received numerous awards and other marks of recognition for their teaching and scholarship. The department offers the master of arts and the doctor of philosophy in Scandinavian studies. A doctoral minor is also available. Graduate students must be fluent in one Scandinavian language and specialize in one particular area, but they may expect to gain a knowledge of the wider Nordic region during their studies. The program offers the possibility to attain a broad education in Scandinavian culture that has proven to be extremely useful in students' professional careers. Students will become well-versed in theory and methodology as well as in cultural history. The department possesses particular strengths in Scandinavian literature, Old Norse philology, and Nordic folklore. Within these broader categories, students may pursue interests in such topics as, mythology, Sámi studies, saint's lives, modernism, sagas, gender criticism, immigration studies, national identity—to name only a few. Languages offered in the department include Danish, Finnish, Icelandic, Norwegian, Sámi, and Swedish. The department has an excellent record of placing its Ph.D. graduates in good positions in the field.

## FUNDING

The department has a number of scholarships, fellowships, teaching assistantships, and readerships at its disposal and makes a serious effort to provide qualified students with adequate financial assistance and teaching experience throughout their graduate careers.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A. with available tracks in area studies, literature, and philology

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a Master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Each track has specific course requirements to be met. Contact program for list of specific courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.25 GPA required. GPA of 3.0 or above may be considered for admission on probation.

### OTHER GRADE REQUIREMENTS

#### M.A. STUDENTS MUST MAINTAIN AT LEAST A 3.25 GPA.

If a student's grades drop below the average indicated, the GPA must be brought up to the minimum by the end of the following semester.

The grade C is regarded as unsatisfactory.

Incompletes must be removed within the following semester or summer session of residence.

### PROBATION POLICY

If a student at any time fails to meet the above criteria for satisfactory progress, he/she is placed on probation. If, by the end of the following semester, progress has not been brought to a satisfactory level, a committee of three faculty members will be established to determine whether any circumstance exists that prevent the dropping of the student from the program.

### ADVISOR / COMMITTEE

In order to encourage progress toward the degree and to determine the status of a student's program, the department requests an annual report from all continuing students to be submitted with the Application for Financial Aid. In the case of first-year students, this report will, of course only cover work done during the fall semester. A copy of this report will be placed in the student's permanent file. See the Graduate Handbook for details about this report. Students are expected to consult regularly on their progress with their advisor.

### ASSESSMENTS AND EXAMINATIONS

All M.A. tracks require a comprehensive written and oral examination.

The literature and area studies tracks offer a thesis option.

### TIME CONSTRAINTS

The normal time for completing the requirements for the M.A. is three to four semesters, although more time can be allowed if a student is entering with deficiencies or has had teaching assistantships, which necessitate a lower credit load.

### LANGUAGE REQUIREMENTS

All tracks require an advanced competency in a modern Scandinavian language. If the modern Scandinavian Language is Finnish or Icelandic, a working knowledge of Norwegian, Swedish, or Danish is required.

For all tracks a minimal competency (e.g., ETS score of 525) in German or another research language approved by the department is required.

The philology track requires two semesters of Old Norse or its equivalent. For the literature track a competency in Old Norse is encouraged.



## ADMISSIONS

Applicants should have a B.A. degree from an approved institution, a major in a field of humanities or social studies, and an outstanding record. Applicants are expected to have preparation equivalent to an undergraduate major in Scandinavian studies at UW–Madison, and must either have taken three years of a Scandinavian language or must demonstrate (by examination) equivalent competence in one Scandinavian language or Finnish. A GPA of 3.25 (on a 4.0 scale) is required for admission; students with a GPA below 3.25 but above 3.00 may be considered for admission on probation. All applicants must submit Graduate Record Exam (GRE) scores.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Brantly, DuBois, Leary, Wolf; Associate Professor Allen (Chair); Assistant Professor Krouk

## SCANDINAVIAN STUDIES, PH.D.

The Ph.D. degree is offered in the fields of literature, folklore, and philology. The basic requirements for all students entering the Ph.D. program correspond to the requirements for the M.A. degree in Scandinavian Studies with concentration in literature, area studies, or philology, as appropriate. Every incoming graduate student should consult with the general graduate advisor upon arrival at UW–Madison. They will discuss the student's academic and career plans, and between them will decide which faculty member will most appropriately act as a committee chair.

Scandinavian studies is in the oldest such department in the Americas, tracing its roots to 1875. Department faculty have received numerous awards and other marks of recognition for their teaching and scholarship. The department offers the master of arts and the doctor of philosophy in Scandinavian studies. A doctoral minor is also available. Graduate students must be fluent in one Scandinavian language and specialize in one particular area, but they may expect to gain a knowledge of the wider

Nordic region during their studies. The program offers the possibility to attain a broad education in Scandinavian culture that has proven to be extremely useful in students' professional careers. Students will become well-versed in theory and methodology as well as in cultural history. The department possesses particular strengths in Scandinavian literature, Old Norse philology, and Nordic folklore. Within these broader categories, students may pursue interests in such topics as, mythology, Sámi studies, saint's lives, modernism, sagas, gender criticism, immigration studies, national identity—to name only a few. Languages offered in the department include Danish, Finnish, Icelandic, Norwegian, Sámi, and Swedish. The department has an excellent record of placing its Ph.D. graduates in good positions in the field.

## FUNDING

The department has a number of scholarships, fellowships, teaching assistantships, and readerships at its disposal and makes a serious effort to provide qualified students with adequate financial assistance and teaching experience throughout their graduate careers.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D. with tracks in folklore, literature, and philology

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Each track has specific course requirements to be met. Contact program for list of specific courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All tracks require a doctoral minor of 10–12 credits taken in another field. These courses should be selected in consultation with the candidate's advisor.

## OVERALL GRADUATE GPA REQUIREMENT

3.25 GPA required.

## OTHER GRADE REQUIREMENTS

Ph.D. candidates should maintain a 3.5 GPA in all core curriculum courses.

If a student's grades drop below the average indicated, the GPA must be brought up to the minimum by the end of the following semester.

The grade C is regarded as unsatisfactory.

Incompletes must be removed within the following semester or summer session of residence.

## PROBATION POLICY

If a student at any time fails to meet the above criteria for satisfactory progress, he/she is placed on probation. If, by the end of the following semester, progress has not been brought to a satisfactory level, a committee of three faculty members will be established to determine whether any circumstance exists that prevent the dropping of the student from the program.

## ADVISOR / COMMITTEE

In order to encourage progress toward the degree and to determine the status of a student's program, the department requests an annual report from all continuing students to be submitted with the Application for Financial Aid. In the case of first-year students, this report will, of course only cover work done during the Fall semester. A copy of this report will be placed in the student's permanent file. See the Graduate Handbook for details about this report. Students are expected to consult regularly on their progress with their advisor.

## ASSESSMENTS AND EXAMINATIONS

All Ph.D. tracks require a comprehensive written and oral examination.

All tracks require a dissertation.

## TIME CONSTRAINTS

The normal time for completing the requirements for the Ph.D. is five to seven semesters beyond the M.A., two of which, normally but not

necessarily, are spent in Scandinavia. Ph.D. candidates will spend the last two to three semesters writing the dissertation.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time. Requests for exceptions, detailing special circumstances, should be submitted to the graduate advisor, who will then determine whether to seek an extension from the Graduate School.

## LANGUAGE REQUIREMENTS

All tracks require an advanced competency in a modern Scandinavian language. If the modern Scandinavian Language is Finnish or Icelandic, a working knowledge of Norwegian, Swedish, or Danish is required.

For all tracks a minimal competency (e.g., ETS score of 525) in German and another research language approved by the department is required or advanced competency (e.g., and ETS score of 675) in German or another research language.

The philology track requires two semesters of Old Norse or its equivalent. For the literature track a competency in Old Norse is encouraged.

## ADMISSIONS

Applicants should have a B.A. degree from an approved institution, a major in a field of humanities or social studies, and an outstanding record. Applicants are expected to have preparation equivalent to an undergraduate major in Scandinavian studies at UW–Madison, and must either have taken three years of a Scandinavian language or must demonstrate (by examination) equivalent competence in one Scandinavian language or Finnish. A GPA of 3.25 (on a 4.0 scale) is required for admission; students with a GPA below 3.25 but above 3.00 may be considered for admission on probation. All applicants must submit Graduate Record Exam (GRE) scores.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- The doctoral level learning goals are inclusive of the master's level learning goals.
- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, and techniques beyond the current boundaries of knowledge within the field of study.
- Creates research and scholarship that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Brantly, DuBois, Leary, Wolf; Associate Professor Allen (Chair); Assistant Professor Krouk

## SLAVIC LANGUAGES AND LITERATURES, DOCTORAL MINOR

### REQUIREMENTS

Graduate students in other departments are invited to minor in the Slavic program, selecting from one of the following established programs. (*Note:* on the transcript, all of these options appear as a doctoral minor in Slavic Languages and Literatures.)

Minor track in Polish

Minor track in Russian

Minor track in Serbo-Croatian

### MINOR TRACK IN POLISH

Contact: Professor Halina Filipowicz (<http://gns.wisc.edu/person/halina-filipowicz>)

12 credits as follows:

Required: SLAVIC 302 Zarys historii literatury polskiej (must be taken before any other courses)

Remaining credits from SLAVIC 470 Historia literatury polskiej do roku 1863, SLAVIC 472 Historia literatury polskiej po roku 1863, SLAVIC 799 Independent Study; students may also take either SLAVIC 331 Fourth Year Polish I or SLAVIC 332 Fourth Year Polish II in this category.

### MINOR TRACK IN RUSSIAN

Contact: Professor Irina Shevelenko (<http://gns.wisc.edu/person/irina-shevelenko>)

12 credits as follows:

At least 6 credits in 700- or 900-level Slavic courses in Russian literature. Remaining credits may be taken in 400-level Slavic courses in Russian literature and up to one of the following: SLAVIC 321 Fourth Year Russian I, SLAVIC 332 Fourth Year Polish II, SLAVIC 802 The Structure of Russian.

### MINOR TRACK IN SERBO-CROATIAN

Contact: Tomislav Longinovic (<http://gns.wisc.edu/person/tomislav-z-longinovic>)

12 credits as follows:

SLAVIC 341 First Semester Intensive Serbo-Croatian  
 SLAVIC 342 Uvod u srpsku i hrvatsku literaturu  
 SLAVIC 449 Istorija srpske i hrvatske literature  
 SLAVIC 454 Moderna srpska i hrvatska literatura

## PEOPLE

**Faculty:** Professors Bethea, Danaher, Dolinin, Evans-Romaine, Filipowicz, Longinovic, van de Water; Associate Professors Reynolds, Shevelenko

## SLAVIC LANGUAGES AND LITERATURES, M.A.

Slavic languages and literature at the University of Wisconsin–Madison is a national leader of doctoral programs in the field, and welcomes students with a B.A./B.S. or M.A. who are interested in all areas of Russian and comparative Slavic prose, poetry, drama, and philosophy. The curriculum offers breadth and depth in a variety of areas of Slavic philology, literature, and culture, and is known for offering a balanced approach to training in teaching, writing, and research.

The program is fortunate to count among its faculty, specialists in Czech, Polish, Russian, and Serbo-Croatian languages, literature, and culture, award-winning authors and teachers, and members of editorial boards of leading journals and publication series. Information regarding faculty biographical sketches are available on the program website. In addition to their excellence in teaching and research, professors are unparalleled mentors to graduate students. Students work closely with faculty members on writing, teaching, and publishing. Graduate students are expected to produce publishable articles during their graduate careers, and are provided the guidance and feedback to do so.

The department places high expectations on graduate students to achieve and maintain professional-level proficiency in the Russian language in all four modalities: speaking, writing, listening, and reading. All students who are not native speakers of Russian will be tested in those modalities—plus Russian grammar—when they enter the program, and periodically throughout their tenure. Appropriate competency must be demonstrated before receiving a teaching assistantship and before passing from M.A. to Ph.D. candidacy.

Graduate students in the program receive exceptional training in teaching both language and literature. The department has a thriving undergraduate program in Slavic languages with strong enrollments in language, literature and culture, providing many opportunities for teaching experience, working closely with master teachers among the faculty and academic staff. In addition to teaching assignments in first- through fourth-semester Russian language (and occasionally in other Slavic languages), as well as in the two-semester undergraduate survey of Russian literature course, the department has also instituted an apprenticeship program for adequately prepared graduate students in the teaching of advanced literature and language classes. The program's graduate teaching assistants regularly win prestigious campus awards for their excellence in the classroom.

The Ph.D. program typically requires three years of coursework, including an introduction to literary theory and a methods course in the teaching of Slavic languages, as well as linguistics courses and the full range of Russian literary and cultural history. An M.A. is conferred after three or four semesters, when all master's requirements are fulfilled. Students accepted to the Ph.D. program with an M.A. in Russian literature earned at another institution may choose to fulfill master's requirements through the passing of a special qualifying examination. All Ph.D. students are also expected to choose a secondary area (minor) in addition to the major in Russian literature. Many choose to minor in a non-Russian Slavic language and literature (Polish or Serbo-Croatian). Other popular minors include English, history, communication arts, second language acquisition, comparative literature, linguistics, philosophy, folklore, and religious studies. The department also requires evidence of reading knowledge of a non-Russian Slavic language (Czech, Polish, or Serbo-Croatian) as well as of French or German before attaining dissertator

status. More information regarding coursework may be found on the program website.

Students complete all requirements for dissertator status by the end of their seventh semester. The graduate program was recently revised, including the dissertation process, to allow for graduation with the Ph.D. in six to seven years from the B.A. Students who choose to take a leave of absence for language study may require a longer tenure.

## FUNDING

Most students receive funding for multiple years in the form of fellowships, teaching assistantships or project assistantships. These positions include a stipend as well as tuition remission and a generous health plan. Additional hourly employment is also often available. See the program website ([http://slavic.lss.wisc.edu/new\\_web/?q=node/271](http://slavic.lss.wisc.edu/new_web/?q=node/271)) and the Graduate School's funding information page (<http://grad.wisc.edu/studentfunding>) for more information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE COURSEWORK (66%) REQUIREMENT

66% of degree coursework (20 credits out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students are not allowed to count graduate coursework from other institution to fulfill degree requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, up to 7 credits numbered 700 and above taken in the Slavic department while pursuing a UW–Madison undergraduate degree are allowed to count toward the degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
SLAVIC 800	Proseminar-Slavic Literature and Culture	1
Select at least two of the following:		
SLAVIC 801	Slavic Critical Theory and Practice	
SLAVIC 802	The Structure of Russian	
SLAVIC 803	Introduction to Old Church Slavonic and the History of Russian Literary Language	
Two SLAVIC 900 3-credit courses (topics seminars)		

### OVERALL GRADUATE GPA REQUIREMENT

3.6 GPA required.

### OTHER GRADE REQUIREMENTS

Students must earn a B or above in all core curriculum coursework.

### PROBATION POLICY

A semester GPA below 3.25 will result in the student being placed on academic probation. If a semester GPA of 3.25 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

### ADVISOR / COMMITTEE

All students meet with graduate advisor once a semester (in November and April) to discuss their progress and to plan their coursework for the subsequent semester.

### ASSESSMENTS AND EXAMINATIONS

Passing grades (no lower than AB) on three of the program's six written Foundation examinations in the history of Russian literature (linked to courses SLAVIC 701 Survey of Old Russian Literature, SLAVIC 702 Eighteenth-Century Russian Literature, SLAVIC 703 Foundations in Russian Romanticism, SLAVIC 707 Foundations in Russian Realism (~1840-1890s), SLAVIC 708 Foundation in Russian Modernism (~1890s-1930s), SLAVIC 709 Foundation in Soviet, Emigre, and Post-Soviet Literature (~1930-present)); exams may be taken irrespective of enrollment in the courses.

Passing at least three out of five Russian language proficiency examinations in reading, writing, speaking, listening, and grammar. Passing level for the first four exams: Advanced Low on ACTFL scale; passing score for grammar test: 80%.

A Gateway exercise: the full faculty review of student's progress to date and assessment of potential to succeed in the Ph.D. track is conducted upon the award of the M.A. At least one senior faculty member must

express willingness ultimately to serve as dissertation advisor. Students who do not pass Gateway exercise may not continue for Ph.D.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

For Russian language proficiency requirements see "Assessments and Examinations."

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D. (p. 373)

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- **Critical Thinking and Writing Skills:** Students will demonstrate: analytic, interpretive, and critical thinking skills; knowledge of research protocols; and understanding of the specificity of the literary object as well as its historical and cultural context.
- Students will develop broad knowledge of Russian literary history, the major writers and movements, from the origins to the present day. Students will demonstrate this knowledge in relation to periods and movements, courses in which are offered during their time in the program. These include: Old Russian Literature; 18th-Century Russian Literature; Romanticism (ca. 1790s to 1840s); Realism (ca. 1840s to 1890s); Modernism (ca. 1890s to 1920s); Soviet, Emigre, and Post-Soviet Periods (ca. 1930s to the present).
- **Language proficiency:** Students will demonstrate Advanced Russian language proficiency on the ACTFL (American Council on the Teaching of Foreign Languages) scale across three modalities (speaking, listening, reading, or writing). Students will also demonstrate advanced knowledge of the structure of contemporary Russian.

### PROFESSIONAL CONDUCT

- Students will recognize and apply principles of ethical and professional conduct in the context of Slavic studies.

## PEOPLE

**Faculty:** Professors Bethea, Danaher, Dolinin, Evans-Romaine, Filipowicz, Longinovic, van de Water; Associate Professors Reynolds, Shevelenko

## SLAVIC LANGUAGES AND LITERATURES, PH.D.

Slavic languages and literature at the University of Wisconsin–Madison is a national leader of doctoral programs in the field, and welcomes

students with a B.A./B.S. or M.A. who are interested in all areas of Russian and comparative Slavic prose, poetry, drama, and philosophy. The curriculum offers breadth and depth in a variety of areas of Slavic philology, literature, and culture, and is known for offering a balanced approach to training in teaching, writing, and research.

The program is fortunate to count among its faculty, specialists in Czech, Polish, Russian, and Serbo-Croatian languages, literature, and culture, award-winning authors and teachers, and members of editorial boards of leading journals and publication series. Information regarding faculty biographical sketches are available on the program website. In addition to their excellence in teaching and research, professors are unparalleled mentors to graduate students. Students work closely with faculty members on writing, teaching, and publishing. Graduate students are expected to produce publishable articles during their graduate careers, and are provided the guidance and feedback to do so.

The department places high expectations on graduate students to achieve and maintain professional-level proficiency in the Russian language in all four modalities: speaking, writing, listening, and reading. All students who are not native speakers of Russian will be tested in those modalities—plus Russian grammar—when they enter the program, and periodically throughout their tenure. Appropriate competency must be demonstrated before receiving a teaching assistantship and before passing from M.A. to Ph.D. candidacy.

Graduate students in the program receive exceptional training in teaching both language and literature. The department has a thriving undergraduate program in Slavic languages with strong enrollments in language, literature and culture, providing many opportunities for teaching experience, working closely with master teachers among the faculty and academic staff. In addition to teaching assignments in first- through fourth-semester Russian language (and occasionally in other Slavic languages), as well as in the two-semester undergraduate survey of Russian literature course, the department has also instituted an apprenticeship program for adequately prepared graduate students in the teaching of advanced literature and language classes. The program's graduate teaching assistants regularly win prestigious campus awards for their excellence in the classroom.

The Ph.D. program typically requires three years of coursework, including an introduction to literary theory and a methods course in the teaching of Slavic languages, as well as linguistics courses and the full range of Russian literary and cultural history. An M.A. is conferred after three or four semesters, when all master's requirements are fulfilled. Students accepted to the Ph.D. program with an M.A. in Russian literature earned at another institution may choose to fulfill master's requirements through the passing of a special qualifying examination. All Ph.D. students are also expected to choose a secondary area (minor) in addition to the major in Russian literature. Many choose to minor in a non-Russian Slavic language and literature (Polish or Serbo-Croatian). Other popular minors include English, history, communication arts, second language acquisition, comparative literature, linguistics, philosophy, folklore, and religious studies. The department also requires evidence of reading knowledge of a non-Russian Slavic language (Czech, Polish, or Serbo-Croatian) as well as of French or German before attaining dissertator status. More information regarding coursework may be found on the program website.

Students complete all requirements for dissertator status by the end of their seventh semester. The graduate program was recently revised, including the dissertation process, to allow for graduation with the Ph.D.

in six to seven years from the B.A. Students who choose to take a leave of absence for language study may require a longer tenure.

## FUNDING

Most students receive funding for multiple years in the form of fellowships, teaching assistantships or project assistantships. These positions include a stipend as well as tuition remission and a generous health plan. Additional hourly employment is also often available. See the program website ([http://slavic.lss.wisc.edu/new\\_web/?q=node/271](http://slavic.lss.wisc.edu/new_web/?q=node/271)) and the Graduate School's funding information page (<http://grad.wisc.edu/studentfunding>) for more information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credit (including Master's credits, but excluding dissertator credits)

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

51 credit (including master's credits, but excluding dissertator credits)

For students who completed their M.A. degree at another institution and who confirmed their M.A. degree in the department by passing a qualifying examination during their first semester of study: 36 credits (excluding dissertator credits).

### MINIMUM GRADUATE COURSEWORK (66%) REQUIREMENT

66% of degree coursework (34 credits out of 51 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students are generally not allowed to count graduate coursework from other institution to fulfill degree requirements. Exceptions are students who are admitted to pursue a Ph.D. degree after completing their M.A. degree at another institution, and who confirmed their M.A. degree in the department by passing a qualifying examination. For such students, up to 15 credits of M.A. coursework counts toward Ph.D. degree requirements. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, up to 7 credits numbered 700 and above taken in the Slavic department while pursuing a UW–Madison undergraduate

degree are allowed to count toward the degree. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

In addition to courses taken toward the M.A.:

Code	Title	Credits
SLAVIC 803	Introduction to Old Church Slavonic and the History of Russian Literary Language	2
Select one of the following (see M.A. requirements):		
SLAVIC 801	Slavic Critical Theory and Practice	
SLAVIC 802	The Structure of Russian	
SLAVIC 804	Methods of Teaching Slavic Languages	
Select one SLAVIC 900 3-credit course (topics seminar)		

Students admitted with M.A. degree from another institution take three Slavic 900 3-credit topics seminars; SLAVIC 800 Proseminar-Slavic Literature and Culture and SLAVIC 804 Methods of Teaching Slavic Languages; and SLAVIC 801 Slavic Critical Theory and Practice, SLAVIC 802 The Structure of Russian, SLAVIC 803 Introduction to Old Church Slavonic and the History of Russian Literary Language—unless they can test out by demonstrating competence in respective areas based on passed graduate coursework.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.6 GPA required

### OTHER GRADE REQUIREMENTS

Students should maintain a 3.6 GPA in all core curriculum courses and may not have any more than two Incompletes on their record at any one time.

### PROBATION POLICY

A semester GPA below 3.25 will result in the student being placed on academic probation. If a semester GPA of 3.25 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

Prior to being admitted to candidacy, all students meet with graduate advisor once a semester (in November and April) to discuss their progress and to plan their coursework for the subsequent semester.

No later than by the end of their sixth semester students choose their dissertation advisor.

After being admitted to candidacy, all students are required to submit brief written yearly progress reports to their thesis committee by the end of January.

## ASSESSMENTS AND EXAMINATIONS

Passing grades (no lower than AB) on all six written Foundation examinations in the history of Russian literature by the end of the sixth semester of coursework, counting from the start of M.A. program (see M.A. requirements for details). For students admitted with M.A. degree same requirements need to be fulfilled by the end of their fourth semester.

Passing all five Russian language proficiency examinations (see M.A. requirements for details) by the end of the sixth semester (end of the fourth semester for students admitted with M.A. degree).

Review of a capstone dossier (all six Foundation examinations and two major seminar papers) by the graduate faculty in the beginning of the seventh semester in the program (fifth semester for students admitted with M.A. degree).

Passing oral examination (defense of a dissertation proposal) by the end of the seventh semester in the program (fifth semester for students admitted with M.A. degree).

Defense of Ph.D. dissertation.

## TIME CONSTRAINTS

Students must fulfill all coursework requirements and pass oral examination by the end of the seventh semester in the program (fifth semester for students admitted with M.A. degree).

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

For Russian language proficiency requirements see "Assessments and Examinations."

Reading knowledge of French or German must be demonstrated through examination.

Reading knowledge of a second Slavic language (Polish, Czech, or Serbo-Croatian) must be demonstrated through coursework (a minimum of two semesters of intensive instruction in Polish, Czech, or Serbo-Croatian) or examination.

## ADMISSIONS

For admission to the graduate program, the Slavic department requires the equivalent of a B.A. degree in Russian and a GPA of at least 3.0 on a 4.0 scale. Students who have carried out graduate work at another institution must have a graduate GPA of 3.25. Official GRE and TOEFL (where applicable) scores are required.

Experience has shown that students who have spent at least a semester studying in Russia are best prepared to carry on graduate-level study in Russian. Students who are admitted with deficiencies, especially in Russian, are required to make up such deficiencies.

Note that we do not ordinarily admit students seeking a terminal M.A. Prospective students who are interested in a terminal master's degree are encouraged to consider the interdisciplinary master's degree in Russian, East European, and Central Asian Studies (REECAS) through the Center for Russia, Eastern Europe and Central Asia (CREECA).

Applications for admission to the graduate program in Russian literature are accepted at any time, but only complete applications received by January 2 will be considered for fellowships and other forms of funding for the following fall semester. More information regarding graduate program admission may be found on the program website ([http://slavic.lss.wisc.edu/new\\_web/?q=node/266](http://slavic.lss.wisc.edu/new_web/?q=node/266)).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- **Critical Thinking and Writing Skills.** Students will demonstrate: analytic, interpretative, and critical thinking skills; knowledge of research protocols; and understanding of the specificity of the literary object as well as its historical and cultural context.
- **Literature.** Students will develop comprehensive knowledge of Russian literary history, the major writers and movements, from the origins to the present day. Students will demonstrate this knowledge in relation to the following periods and movements: Old Russian Literature; 18th-Century Russian Literature; Romanticism (ca. 1790s to 1840s); Realism (ca. 1840s to 1890s); Modernism (ca. 1890s to 1920s); Soviet, Emigre, and Post-Soviet Periods (ca. 1930s to the present).
- **Language proficiency.** Students will demonstrate Advanced Russian language proficiency on the ACTFL (American Council on the Teaching of Foreign Languages) scale across all modalities (speaking, listening, reading, writing). Students will also demonstrate advanced knowledge of the structure of contemporary Russian. Students will also develop, at minimum, reading proficiency in languages essential for research in the field, including a second Slavic language and either French or German.
- **Ph.D. Minor:** Students will demonstrate intellectual breadth and the ability to synthesize cross-cultural and interdisciplinary perspectives through the completion of a doctoral minor.
- **Ph.D. Dissertation;** A successful Ph.D. candidate will have written a dissertation that synthesizes knowledge of relevant disciplines and develops it to create an original contribution to scholarship. The candidate will be able to present the results of her or his research both to experts in the field as well as to a wider public.
- **Teacher-Trainer:** Students will demonstrate, both in theory and through instructional practice, foundational knowledge of second-

language teaching, including the concepts of proficiency-oriented instruction and communicative language teaching; principles behind the design, integration, and delivery of classroom instruction and appropriate assessment instruments for all four modalities (speaking, listening, reading, writing), structure, and culture.

## PROFESSIONAL CONDUCT

- Students will recognize, apply, and foster principles of ethical and professional conduct in the context of Slavic studies.

## PEOPLE

**Faculty:** Professors Bethea, Danaher, Dolinin, Evans-Romaine, Filipowicz, Longinovic, van de Water; Associate Professors Reynolds, Shevelenko



## GRADUATE—SCHOOL-WIDE

The Graduate School can authorize special committees to supervise master's or doctoral programs for students whose needs cannot be met within an established program. Students must first be accepted into a graduate-degree-granting program and establish one semester of full-time graduate work at UW–Madison, and then the faculty advisor should submit a proposal for a special committee degree. Students should check with the Graduate School and the individual faculty member with whom they are interested in working.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Biophysics, Doctoral Minor (p. 377)
- Biophysics, M.S. (p. 377)
- Biophysics, Ph.D. (p. 379)
- Cellular and Molecular Biology, M.S. (p. 381)
- Cellular and Molecular Biology, Ph.D. (p. 383)
- Distributed, Doctoral Minor (p. 384)
- Special Graduate Committee, M.A. (p. 385)
- Special Graduate Committee, M.S. (p. 385)
- Special Graduate Committee, Ph.D. (p. 386)

## BIOPHYSICS, DOCTORAL MINOR

Students enrolled in a UW–Madison doctoral program can pursue a doctoral minor in biophysics. The doctoral minor offers substantial training in biophysics. A doctoral minor in biophysics can serve as supplement to training in a broad range of disciplines in which physics, physical chemistry, biology, and medicine intersect. The biophysics minor will give students a rigorous understanding of quantitative approaches to physical and chemical problems in the life sciences. Course offerings that provide pedagogical instruction to biophysics students serve as the basis for the biophysics minor.

## REQUIREMENTS

Graduate students who wish to pursue an Option A external minor in biophysics must take CHEM/BIOCHEM 665 Biophysical Chemistry and CHEM 668 Biophysical Spectroscopy. To reach the 9 credit requirement for Option A one or more other courses from the current core biophysics curriculum of core courses must be taken. These courses include BIOCHEM 601 Protein and Enzyme Structure and Function, BIOCHEM/GENETICS/MICROBIO 612 Prokaryotic Molecular Biology, BIOCHEM/GENETICS/MD GENET 620 Eukaryotic Molecular Biology, and NTP/PHMCOL-M/PHYSIOL 610 Cellular and Molecular Neuroscience. For additional options students can consult the current listing of courses satisfying elective requirements for the Ph.D. in biophysics.

## BIOPHYSICS, M.S.

The doctor of philosophy degree with a major in biophysics is an interdepartmental offering under the supervision of the biophysics

program committee. The biophysics degree is intended for those who wish to emphasize physical principles and methods in solving biological problems. By necessity, the interdisciplinary nature of biophysics generates interaction among, and expands the boundaries of, traditional areas of science. Persons with strong training in biophysics can be expected to be major innovators and contributors in research and applied technology. Biophysics graduates pursue careers in academic, industrial, and government research, and in teaching and administration.

The biophysics program consists of 44 faculty members from 14 departments that span four colleges within the university. State-of-the-art facilities are available within the biophysics program for research in x-ray crystallography, nuclear magnetic-resonance spectroscopy, electron resonance spectroscopy, fluorescence spectroscopy, microscopy and imaging, and computational chemistry. Graduate students in biophysics can choose from an expansive range of research topics including, but not limited to, biomolecular structure and function interactions, protein engineering and biotechnology, virus structure and function, enzyme catalysis and kinetics, membranes, neurochemistry, and electrophysiology.

The program is flexible in its formal course requirements and emphasizes excellence in research. The candidate is encouraged to begin research as quickly as possible, since it is research experience that brings focus and meaning to classroom studies, and research progress that empowers critical judgment and self-confidence for independent work. To enhance self-confidence, students are expected to participate in weekly seminars and to present a seminar.

Financial assistance is available to support qualified graduate students throughout their graduate studies. Types of graduate appointments that may be awarded include research assistantships, fellowships, and traineeships. The stipends awarded provide financial support to students during their graduate work, permitting them to devote their efforts to coursework and research. In recognition of the leadership provided by scientists and researchers at University of Wisconsin–Madison, the National Institutes of Health (NIH) have funded a predoctoral training grant in molecular biophysics for the past consecutive 20 years.

A master's degree is offered officially; however, students are not admitted into the program for a terminal master's degree. For more information, see the Biophysics Handbook (<http://www.biophysics.wisc.edu/handbook>).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned more than two years prior to admission to the doctoral degree is not allowed to satisfy requirements. No admissions are made into the master's program.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned more than two years prior to admission to the doctoral degree is not allowed to satisfy requirements. No admissions are made into the master's program.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Half of degree coursework (15 credits out of 30 total credits) must be completed in courses numbered 700 and above and those courses numbered 600 and above considered graduate level in the biophysics program, which currently includes core courses BIOCHEM 601 Protein and Enzyme Structure and Function, BIOCHEM/GENETICS/MICROBIO 612 Prokaryotic Molecular Biology, BIOCHEM/CHEM 665 Biophysical Chemistry, CHEM 668 Biophysical Spectroscopy and NTP/PHMCOL-M/PHYSIOL 610 Cellular and Molecular Neuroscience, as well as those courses outside biophysics that have been identified as graduate level by the courses home departments.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

3.00 overall GPA required. Any grade of BC or lower will not count toward the Biophysics core course requirement. If a student receives a BC or lower, the student must repeat the course in order to receive a higher grade. The student may also substitute to course for an alternate core course.

## PROBATION POLICY

If students fall below the 3.00 GPA program requirement or have incomplete grades, the biophysics program follows the Graduate School's

policy of satisfactory/unsatisfactory progress. This could result in academic probation or suspension.

## ADVISOR / COMMITTEE

All students are required to have an advisor by the end of their first semester in the program. Thesis committees must be formed prior to their preliminary exam. The committee consists of at least four other faculty members and the student's advisor. After gaining dissertator status, students are required to hold yearly progress report meetings with their committee until graduation.

## ASSESSMENTS AND EXAMINATIONS

Students take two rounds of exams in order to achieve dissertator status. At the end of students' second year, they are required to take their written preliminary exam. Once this exam is passed, students must take their preliminary exam by the end of their third year.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D. (p. 379)

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Understands the primary field of study in a historical, social or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical conduct.

## PEOPLE

### Faculty:

Professors Meyer Jackson (chair), Brunold (Chemistry), Burstyn (Chemistry), Butcher (Biochemistry), Cavagnero (Chemistry), Chapman (Neuroscience), Cui (Chemistry), Czajkowski (Neuroscience), Fettiplace

(Neuroscience), Forest (Bacteriology), Fox (Biochemistry), Gellman (Chemistry), Gilbert (Physics), Hardin (Zoology), Holden (Biochemistry), Keck (Biomolecular Chemistry), Kiessling (Chemistry), Landick (Biochemistry), Markley (Biochemistry), Mitchell (Mathematics), Murphy (Chemical and Biological Engineering), Raines (Biochemistry), Rayment (Biochemistry), Record (Biochemistry), Robertson (Neuroscience), Schwartz (Chemistry), Smith (Chemistry), van der Weide (Electrical and Computer Engineering), Weisshaar (Chemistry), Yethiraj (Chemistry), Yin (Chemical and Biological Engineering), Zanni (Chemistry); Associate Professors Chanda (Neuroscience), Craciun (Mathematics), Henzler-Wildman (Biochemistry), Jones (Neuroscience), Senes (Biochemistry), Weibel (Biochemistry), Yongna Xing (Oncology); Assistant Professors Goldsmith (Chemistry), Hoskins (Biochemistry), Lou (Neuroscience), Merrins (Biomolecular Chemistry), Murrell (Biomedical Engineering), Raman (Biochemistry)

## BIOPHYSICS, PH.D.

The doctor of philosophy degree with a major in biophysics is an interdepartmental offering under the supervision of the biophysics program committee. The biophysics degree is intended for those who wish to emphasize physical principles and methods in solving biological problems. By necessity, the interdisciplinary nature of biophysics generates interaction among, and expands the boundaries of, traditional areas of science. Persons with strong training in biophysics can be expected to be major innovators and contributors in research and applied technology. Biophysics graduates pursue careers in academic, industrial, and government research, and in teaching and administration.

The biophysics program consists of 44 faculty members from 14 departments that span four colleges within the university. State-of-the-art facilities are available within the biophysics program for research in x-ray crystallography, nuclear magnetic-resonance spectroscopy, electron resonance spectroscopy, fluorescence spectroscopy, microscopy and imaging, and computational chemistry. Graduate students in biophysics can choose from an expansive range of research topics including, but not limited to, biomolecular structure and function interactions, protein engineering and biotechnology, virus structure and function, enzyme catalysis and kinetics, membranes, neurochemistry, and electrophysiology.

The program is flexible in its formal course requirements and emphasizes excellence in research. The candidate is encouraged to begin research as quickly as possible, since it is research experience that brings focus and meaning to classroom studies, and research progress that empowers critical judgment and self-confidence for independent work. To enhance self-confidence, students are expected to participate in weekly seminars and to present a seminar.

Financial assistance is available to support qualified graduate students throughout their graduate studies. Types of graduate appointments that may be awarded include research assistantships, fellowships, and traineeships. The stipends awarded provide financial support to students during their graduate work, permitting them to devote their efforts to coursework and research. In recognition of the leadership provided by scientists and researchers at University of Wisconsin–Madison, the National Institutes of Health (NIH) have funded a predoctoral training grant in molecular biophysics for the past consecutive 20 years.

A master's degree is offered officially; however, students are not admitted into the program for a terminal master's degree. For more information,

see the Biophysics Handbook (<http://www.biophysics.wisc.edu/handbook>).

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned more than two years prior to admission to the doctoral degree is not allowed to satisfy requirements. No admissions are made into the master's program.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned more than two years prior to admission to the doctoral degree is not allowed to satisfy requirements. No admissions are made into the master's program.

### CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Half of degree coursework (26 credits out of 51 total credits) must be completed in courses numbered 700 and above and those courses numbered 600 and above considered graduate level in the biophysics program, which currently includes core courses BIOCHEM 601 Protein and Enzyme Structure and Function, BIOCHEM/GENETICS/MICROBIO 612 Prokaryotic Molecular Biology, BIOCHEM/CHEM 665 Biophysical Chemistry, CHEM 668 Biophysical Spectroscopy and NTP/PHMCOL-M/PHYSIOL 610 Cellular and Molecular Neuroscience, as well as those courses outside biophysics that have been identified as graduate level by the courses' home departments.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

No minor required.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

3.00 overall GPA required. Any grade of BC or lower will not count toward the Biophysics core course requirement. If a student receives a BC or lower, the student must repeat the course in order to receive a higher grade. The student may also substitute to course for an alternate core course.

## PROBATION POLICY

If students fall below the 3.00 GPA program requirement or have incomplete grades, the biophysics program follows the Graduate School's policy of satisfactory/unsatisfactory progress. This could result in academic probation or suspension.

## ADVISOR / COMMITTEE

All students are required to have an advisor by the end of their first semester in the program. Thesis committees must be formed prior to their preliminary exam. The committee consists of at least four other faculty members and the student's advisor. After gaining dissertator status, students are required to hold yearly progress report meetings with their committee until graduation.

## ASSESSMENTS AND EXAMINATIONS

Students take two rounds of exams in order to achieve dissertator status. At the end of students' second year, they are required to take their written preliminary exam. Once this exam is passed, students must take their preliminary exam by the end of their third year.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Undergraduate preparation for the biophysics program can vary widely and will be evaluated by the admissions committee on an individual basis. Most applicants have taken courses in general, organic, and physical chemistry; introductory physics; cell and/or molecular biology; calculus through differential equations; and computer sciences. Students can generally make up any deficiencies in their undergraduate background within the first year of graduate study through a broad and flexible course curriculum. The normal undergraduate course prerequisites are:

- two semesters of physics with calculus
- two semesters of calculus
- two semesters of organic chemistry
- one semester of physical chemistry
- one semester of computer sciences
- one semester of statistics
- introduction to biology

Exceptions to these requirements may be granted for incoming biophysics graduate students who otherwise have strong undergraduate training in physics, mathematics, computer sciences, biology, chemistry, or other fields related to biophysics. In such cases, each missing required course will be counted as a deficiency that the student must correct by obtaining a passing grade in an equivalent undergraduate or graduate course taken within the first two years of graduate study.

In addition, it is recommended for entering graduate students to have taken undergraduate courses in general biochemistry; general genetics and/or molecular biology; and biophysical chemistry. Students who have not taken courses in these subjects will be expected to do so as part of their formal graduate coursework.

## COURSES

Code	Title	Credits
BIOCHEM 601	Protein and Enzyme Structure and Function	2
BIOCHEM/ GENETICS/ MICROBIO 612	Prokaryotic Molecular Biology	3
BIOCHEM/ GENETICS/ MD GENET 620	Eukaryotic Molecular Biology	3
BIOCHEM/CHEM 665	Biophysical Chemistry	4
CHEM 668	Biophysical Spectroscopy	2-3
CHEM/ BIOCHEM 872	Selected Topics in Macromolecular and Biophysical Chemistry	1-3
NTP/PHMCOL-M/ PHYSIOL 610	Cellular and Molecular Neuroscience	4
BIOCHEM 990	Research	1-12

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates challenges, frontiers and limits with respect to theory, knowledge or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Communicates complex or ambiguous ideas in a clear and understandable manner.
- Evaluates the implications of the discipline to broader social concerns.

### PROFESSIONAL CONDUCT

- Fosters ethical conduct and professional guidelines.

## PEOPLE

### Faculty:

Professors Meyer Jackson (chair), Brunold (Chemistry), Burstyn (Chemistry), Butcher (Biochemistry), Cavangero (Chemistry), Chapman (Neuroscience), Cui (Chemistry), Czajkowski (Neuroscience), Fettiplace (Neuroscience), Forest (Bacteriology), Fox (Biochemistry), Gellman (Chemistry), Gilbert (Physics), Hardin (Zoology), Holden (Biochemistry), Keck (Biomolecular Chemistry), Kiessling (Chemistry), Landick (Biochemistry), Markley (Biochemistry), Mitchell (Mathematics), Murphy (Chemical and Biological Engineering), Raines (Biochemistry), Rayment (Biochemistry), Record (Biochemistry), Robertson (Neuroscience), Schwartz (Chemistry), Smith (Chemistry), van der Weide (Electrical and Computer Engineering), Weisshaar (Chemistry), Yethiraj (Chemistry), Yin (Chemical and Biological Engineering), Zanni (Chemistry); Associate Professors Chanda (Neuroscience), Craciun (Mathematics), Henzler-Wildman (Biochemistry), Jones (Neuroscience), Senes (Biochemistry), Weibel (Biochemistry), Yongna Xing (Oncology); Assistant Professors Goldsmith (Chemistry), Hoskins (Biochemistry), Lou (Neuroscience), Merrins (Biomolecular Chemistry), Murrell (Biomedical Engineering), Raman (Biochemistry)

## CELLULAR AND MOLECULAR BIOLOGY, M.S.

Graduate study in cellular and molecular biology at the University of Wisconsin–Madison is a research-oriented interdisciplinary program leading to the Ph.D. degree. Students are not admitted to the master's degree program. The university has one of the largest and most prestigious biology facilities in the world, well-noted for its cooperation and collaboration across department boundaries. The Cellular and Molecular Biology Program (CMB) is an important part of that interdepartmental strength, providing students with the opportunity to work with more than 190 faculty members in 40 departments.

A major strength of the program is that it provides the opportunity for groups of investigators to work together on research topics of common

interest. Research topic areas, identified as focus groups, are composed of faculty and students studying common research areas. Each group is held together by participation of both students and faculty at regular research presentations and by the participation of faculty on thesis committees of many students in the group. Because of the diverse nature of most research areas and the cross-fertilization among focus groups, many faculty and students participate in the activities of multiple focus groups.

The focus groups are: cancer biology; cell adhesion and cytoskeleton; cellular and molecular metabolism; developmental biology and regenerative medicine; immunology; membrane biology and protein trafficking; molecular and genome biology of microbes; plant biology; RNA; systems biology; transcriptional mechanisms; and virology. For a complete listing of each faculty member associated with each focus group and the corresponding research, see the CMB website (<http://www.cmb.wisc.edu>).

The CMB program encourages each student to develop an independent and creative approach to science. These skills can be gained through the program requirements, which include course work and research in the student's specific area of interest. All CMB students are required to obtain 11 credits in the CMB core curriculum, which consists of both cellular and molecular biology course work, in addition to a 1-credit ethics requirement. Also, students take courses and seminars, and participate in journal clubs related to their specific areas of expertise. Research experience is an integral part of the program while completing these requirements. The combination of coursework and research experience allows students to obtain a solid foundation in cellular and molecular biology that is also tailored to the professional objectives of each student. Specific core curriculum requirements can be found at the CMB website (<http://www.cmb.wisc.edu>).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of the 30 required credits for the MS degree must be fulfilled with graduate-level coursework; courses with the Graduate Level Attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

Does not appear on UW–Madison transcript or count toward graduate GPA. The minimum residence requirement can be satisfied only with courses taken as a graduate student at UW–Madison, with the exception being graduate-level work taken as a CIC traveling scholar. These requests evaluated on case-by-case basis

## PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNDERGRADUATE

The program may decide to accept up to 7 credits numbered 300 or above of required or elective courses from undergraduate work completed at UW–Madison towards fulfillment of minimum degree requirements. This is not allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Work will not appear on the graduate career portion of UW–Madison transcript or count toward GPA. Minimum residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison. All requests evaluated on case-by-case basis.

## PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNIVERSITY SPECIAL

The program may accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, or graduate degree requirements on occasion. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. All requests evaluated on case-by-case basis.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a

faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D. (p. 383)

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

## PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## ADDITIONAL LEARNING GOALS

- The overriding goal of the program is for students to acquire the ability to perform, design, critique, write about, and speak about research in the fields of cell biology and molecular biology. Knowledge and skills goals will be met through courses and thesis research.

## PEOPLE

**Faculty:** D. Wassarman (program chair); *Focus Group Chairs:* Alexander (Cancer Biology), Amann (Cell Adhesion and Cytoskeleton), Pagliarini (Cellular and Molecular Metabolism), Griep (Developmental Biology and Regenerative Medicine), McNeel (Immunology), Groblewski (Membrane Biology and Protein Trafficking), Landick (Molecular and Genome Biology of Microbes), Bednarek (Plant Biology), Brow (RNA), Kreeger (Systems

Biology), Harrison (Transcriptional Mechanisms), Ahlquist (Virology). For a list of all participating faculty, see the program website (<http://www.cmb.wisc.edu>).

## CELLULAR AND MOLECULAR BIOLOGY, PH.D.

Graduate study in cellular and molecular biology at the University of Wisconsin–Madison is a research-oriented interdisciplinary program leading to the Ph.D. degree. Students are not admitted to the master's degree program. The university has one of the largest and most prestigious biology facilities in the world, well-noted for its cooperation and collaboration across department boundaries. The Cellular and Molecular Biology Program (CMB) is an important part of that interdepartmental strength, providing students with the opportunity to work with more than 190 faculty members in 40 departments.

A major strength of the program is that it provides the opportunity for groups of investigators to work together on research topics of common interest. Research topic areas, identified as focus groups, are composed of faculty and students studying common research areas. Each group is held together by participation of both students and faculty at regular research presentations and by the participation of faculty on thesis committees of many students in the group. Because of the diverse nature of most research areas and the cross-fertilization among focus groups, many faculty and students participate in the activities of multiple focus groups.

The focus groups are: cancer biology; cell adhesion and cytoskeleton; cellular and molecular metabolism; developmental biology and regenerative medicine; immunology; membrane biology and protein trafficking; molecular and genome biology of microbes; plant biology; RNA; systems biology; transcriptional mechanisms; and virology. For a complete listing of each faculty member associated with each focus group and the corresponding research, see the CMB website (<http://www.cmb.wisc.edu>).

The CMB program encourages each student to develop an independent and creative approach to science. These skills can be gained through the program requirements, which include course work and research in the student's specific area of interest. All CMB students are required to obtain 11 credits in the CMB core curriculum, which consists of both cellular and molecular biology course work, in addition to a 1-credit ethics requirement. Also, students take courses and seminars, and participate in journal clubs related to their specific areas of expertise. Research experience is an integral part of the program while completing these requirements. The combination of coursework and research experience allows students to obtain a solid foundation in cellular and molecular biology that is also tailored to the professional objectives of each student. Specific core curriculum requirements can be found at the CMB website (<http://www.cmb.wisc.edu>).

## FUNDING

Initially, all students accepted into the Ph.D. degree program receive financial support from Graduate School fellowships, interdepartmental training grants, and/or research assistantships. The program strives to maintain a nationally competitive stipend. Students were guaranteed a stipend of \$26,000 for 2015-16; tuition is remitted. After a student has chosen a thesis advisor, support is obtained either by the thesis advisor

or by a previously named source. Graduate students are also eligible for comprehensive health insurance; individual or family coverage is available at a minimal cost. Students are strongly encouraged to apply for a National Science Foundation Graduate Fellowship, at the time of application to graduate school or during the first semester on campus.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of the 51 required credits for the PhD degree must be fulfilled with graduate-level coursework; courses with the Graduate Level Attribute are identified and searchable in the university's Course Guide (<http://guide.wisc.edu/graduate/graduate-school-wide/cellular-molecular-biology-phd/%20http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

Does not appear on UW–Madison transcript or count toward graduate GPA. The minimum residence requirement can be satisfied only with courses taken as a graduate student at UW–Madison, with the exception being graduate-level work taken as a CIC traveling scholar. These requests evaluated on case-by-case basis

### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNDERGRADUATE

The program may decide to accept up to seven credits numbered 300 or above of required or elective courses from undergraduate work completed at UW–Madison towards fulfillment of minimum degree requirements. This is not allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Work will not appear on the graduate career portion of UW–Madison transcript or count toward GPA. Minimum residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison. All requests evaluated on case-by-case basis.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNIVERSITY SPECIAL

The program may accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, or graduate degree requirements on occasion. This work would not be allowed to count

toward the 50% graduate coursework minimum unless taken at the 700 level or above. All requests evaluated on case-by-case basis.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students may complete a minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects the to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

### TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within 5 years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission to the program is highly competitive. Admission is based on demonstrated ability and interest in mathematics, the physical sciences, chemistry, and biology; Graduate Record Exam (GRE) scores; three letters of recommendation; and the personal statement. Previous research experience is required. Applicants are required to take the GRE general test. The GRE subject test in biology, chemistry, biochemistry, and molecular biology is recommended but not required.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge or practice within the field of cellular and molecular biology.
- Formulates ideas, concepts, and/or techniques beyond the current boundaries or knowledge within the field of cellular and molecular biology.
- Creates research or scholarship that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

### ADDITIONAL LEARNING GOALS

- The overriding goal of the program is for students to acquire the ability to perform, design, critique, write about and speak about research in the fields of cell biology and molecular biology. Knowledge and skills will be met through courses and thesis research.

## PEOPLE

**Faculty:** D. Wassarman (program chair); *Focus Group Chairs:* Alexander (Cancer Biology), Amann (Cell Adhesion and Cytoskeleton), Pagliarini (Cellular and Molecular Metabolism), Griep (Developmental Biology and Regenerative Medicine), McNeel (Immunology), Groblewski (Membrane Biology and Protein Trafficking), Landick (Molecular and Genome Biology of Microbes), Bednarek (Plant Biology), Brow (RNA), Kreeger (Systems Biology), Harrison (Transcriptional Mechanisms), Ahlquist (Virology). For a list of all participating faculty, see the program website (<http://www.cmb.wisc.edu>).

## DISTRIBUTED, DOCTORAL MINOR



## SPECIAL GRADUATE COMMITTEE, M.A.

(via Graduate School Academic Policies & Procedures (<https://grad.wisc.edu/acadpolicy/#specialgraduatecommitteedegrees>))

Special graduate committee degrees are one-of-a-kind degrees built around unique needs of individual students that cannot be satisfied by approved programs (e.g., by existing major program/minor combinations, joint degrees, distributed minors, and so on) and may permit individual degrees in new and emerging fields or combinations of disciplines. A higher degree of independence is required on the part of the student, since easily available guidance provided by programs is often more difficult to obtain, and there is not the usual collegial group of students in closely related research and coursework.

### ADMISSIONS

(via Graduate School Academic Policies & Procedures (<https://grad.wisc.edu/acadpolicy/#specialgraduatecommitteedegrees>))

The master's and doctoral special graduate committee guidelines are:

1. Prospective students who may have an interest in a special graduate committee degree should apply to the degree program that is closest to their program interest.
2. Upon receipt of an application on which a prospective student has expressed interest in a special graduate committee degree, the program will follow all relevant program admission requirements.
3. Students may not be admitted directly to a special graduate committee degree program. They must be accepted for admission by an established department or program and be attending classes at UW–Madison before a proposal for a special graduate committee degree will be considered by the Graduate School.
4. The department or program admitting the student must be prepared to see the student through an established degree program. No commitments are made to provide a special graduate committee degree until after the student is enrolled and the proposal for the special degree and the student's ability at the graduate level have been evaluated and approved.
5. The student's advisor authors and submits the special graduate committee degree proposal on behalf of the student as early in the student's program as possible. Proposals submitted after a substantial portion of the program has been completed will not be accepted. Doctoral proposals must be submitted by the end of the first year of graduate work. Master's proposals must be submitted after the equivalent of the first full-time semester of graduate work. The proposal should consist of the following elements:
  - The reasons the special graduate committee program is needed and an explanation of why the student's needs cannot be met within existing programs.
  - The exact title of the proposed degree program (which should be brief and descriptive).
  - The proposed course and seminar program of graduate work on this campus. Include the course title, program, course number, credits, grade, and semester taken/to be taken.
  - Any specific requirements of the dissertation or thesis (language, equipment, etc.).

- The nature and scope of preliminary examinations for the doctoral degree, or the examination procedure for the master's degree.
  - The nature of the dissertation or thesis (general subject area).
  - The names of the faculty members who, in addition to the advisor, are willing to share the responsibility of supervising the student's program. Including the advisor, the doctoral degree requires 5 members (including 4 UW–Madison graduate faculty members), and the master's degree requires 3 members (including 2 UW–Madison graduate faculty members). Approval signatures of the committee members are required on the proposal.
6. The Graduate School will carefully review proposals to determine whether or not the program can be carried out within an established department or program, joint degrees, appropriate use of minors, or other available mechanisms. The suitability and degree of commitment of the committee for the proposed program will be examined.
  7. The chairperson of the committee (usually the advisor) should be a member of the program to which the student originally had been admitted. That program should remain the keeper of the student's records and should make all appropriate nominations for financial aid.
  8. The Graduate School is concerned about maintaining active participation by all members of special degree committees in the ongoing program of the student and asks the individual members of the committee to assume program responsibilities provided institutionally in a conventional program. Faculty members who are willing to serve on these committees should be prepared to participate fully in all aspects of the student's program from the beginning, especially where they must provide the necessary expertise in their particular areas of interest.

## SPECIAL GRADUATE COMMITTEE, M.S.

(via Graduate School Academic Policies & Procedures (<https://grad.wisc.edu/acadpolicy/#specialgraduatecommitteedegrees>))

Special graduate committee degrees are one-of-a-kind degrees built around unique needs of individual students that cannot be satisfied by approved programs (e.g., by existing major program/minor combinations, joint degrees, distributed minors, and so on) and may permit individual degrees in new and emerging fields or combinations of disciplines. A higher degree of independence is required on the part of the student, since easily available guidance provided by programs is often more difficult to obtain, and there is not the usual collegial group of students in closely related research and coursework.

### ADMISSIONS

(via Graduate School Academic Policies & Procedures (<https://grad.wisc.edu/acadpolicy/#specialgraduatecommitteedegrees>))

The master's and doctoral special graduate committee guidelines are:

1. Prospective students who may have an interest in a special graduate committee degree should apply to the degree program that is closest to their program interest.

2. Upon receipt of an application on which a prospective student has expressed interest in a special graduate committee degree, the program will follow all relevant program admission requirements.
3. Students may not be admitted directly to a special graduate committee degree program. They must be accepted for admission by an established department or program and be attending classes at UW–Madison before a proposal for a special graduate committee degree will be considered by the Graduate School.
4. The department or program admitting the student must be prepared to see the student through an established degree program. No commitments are made to provide a special graduate committee degree until after the student is enrolled and the proposal for the special degree and the student's ability at the graduate level have been evaluated and approved.
5. The student's advisor authors and submits the special graduate committee degree proposal on behalf of the student as early in the student's program as possible. Proposals submitted after a substantial portion of the program has been completed will not be accepted. Doctoral proposals must be submitted by the end of the first year of graduate work. Master's proposals must be submitted after the equivalent of the first full-time semester of graduate work. The proposal should consist of the following elements:
  - The reasons the special graduate committee program is needed and an explanation of why the student's needs cannot be met within existing programs.
  - The exact title of the proposed degree program (which should be brief and descriptive).
  - The proposed course and seminar program of graduate work on this campus. Include the course title, program, course number, credits, grade, and semester taken/to be taken.
  - Any specific requirements of the dissertation or thesis (language, equipment, etc.).
  - The nature and scope of preliminary examinations for the doctoral degree, or the examination procedure for the master's degree.
  - The nature of the dissertation or thesis (general subject area).
  - The names of the faculty members who, in addition to the advisor, are willing to share the responsibility of supervising the student's program. Including the advisor, the doctoral degree requires 5 members (including 4 UW–Madison graduate faculty members), and the master's degree requires 3 members (including 2 UW–Madison graduate faculty members). Approval signatures of the committee members are required on the proposal.
6. The Graduate School will carefully review proposals to determine whether or not the program can be carried out within an established department or program, joint degrees, appropriate use of minors, or other available mechanisms. The suitability and degree of commitment of the committee for the proposed program will be examined.
7. The chairperson of the committee (usually the advisor) should be a member of the program to which the student originally had been admitted. That program should remain the keeper of the student's records and should make all appropriate nominations for financial aid.
8. The Graduate School is concerned about maintaining active participation by all members of special degree committees in the ongoing program of the student and asks the individual members of the committee to assume program responsibilities provided institutionally in a conventional program. Faculty members who

are willing to serve on these committees should be prepared to participate fully in all aspects of the student's program from the beginning, especially where they must provide the necessary expertise in their particular areas of interest.

## SPECIAL GRADUATE COMMITTEE, PH.D.

(via Graduate School Academic Policies & Procedures (<https://grad.wisc.edu/acadpolicy/#specialgraduatecommitteedegrees>))

Special graduate committee degrees are one-of-a-kind degrees built around unique needs of individual students that cannot be satisfied by approved programs (e.g., by existing major program/minor combinations, joint degrees, distributed minors, and so on) and may permit individual degrees in new and emerging fields or combinations of disciplines. A higher degree of independence is required on the part of the student, since easily available guidance provided by programs is often more difficult to obtain, and there is not the usual collegial group of students in closely related research and coursework.

## ADMISSIONS

(via Graduate School Academic Policies & Procedures (<https://grad.wisc.edu/acadpolicy/#specialgraduatecommitteedegrees>))

The master's and doctoral special graduate committee guidelines are:

1. Prospective students who may have an interest in a special graduate committee degree should apply to the degree program that is closest to their program interest.
2. Upon receipt of an application on which a prospective student has expressed interest in a special graduate committee degree, the program will follow all relevant program admission requirements.
3. Students may not be admitted directly to a special graduate committee degree program. They must be accepted for admission by an established department or program and be attending classes at UW–Madison before a proposal for a special graduate committee degree will be considered by the Graduate School.
4. The department or program admitting the student must be prepared to see the student through an established degree program. No commitments are made to provide a special graduate committee degree until after the student is enrolled and the proposal for the special degree and the student's ability at the graduate level have been evaluated and approved.
5. The student's advisor authors and submits the special graduate committee degree proposal on behalf of the student as early in the student's program as possible. Proposals submitted after a substantial portion of the program has been completed will not be accepted. Doctoral proposals must be submitted by the end of the first year of graduate work. Master's proposals must be submitted after the equivalent of the first full-time semester of graduate work. The proposal should consist of the following elements:
  - The reasons the special graduate committee program is needed and an explanation of why the student's needs cannot be met within existing programs.
  - The exact title of the proposed degree program (which should be brief and descriptive).

- The proposed course and seminar program of graduate work on this campus. Include the course title, program, course number, credits, grade, and semester taken/to be taken.
  - Any specific requirements of the dissertation or thesis (language, equipment, etc.).
  - The nature and scope of preliminary examinations for the doctoral degree, or the examination procedure for the master's degree.
  - The nature of the dissertation or thesis (general subject area).
  - The names of the faculty members who, in addition to the advisor, are willing to share the responsibility of supervising the student's program. Including the advisor, the doctoral degree requires 5 members (including 4 UW–Madison graduate faculty members), and the master's degree requires 3 members (including 2 UW–Madison graduate faculty members). Approval signatures of the committee members are required on the proposal.
6. The Graduate School will carefully review proposals to determine whether or not the program can be carried out within an established department or program, joint degrees, appropriate use of minors, or other available mechanisms. The suitability and degree of commitment of the committee for the proposed program will be examined.
  7. The chairperson of the committee (usually the advisor) should be a member of the program to which the student originally had been admitted. That program should remain the keeper of the student's records and should make all appropriate nominations for financial aid.
  8. The Graduate School is concerned about maintaining active participation by all members of special degree committees in the ongoing program of the student and asks the individual members of the committee to assume program responsibilities provided institutionally in a conventional program. Faculty members who are willing to serve on these committees should be prepared to participate fully in all aspects of the student's program from the beginning, especially where they must provide the necessary expertise in their particular areas of interest.

# HISTORY

**Administrative Unit:** History

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A., Ph.D.

**Minors and Certificates:** Doctoral Minor

**Specializations:** African, Central Asian, Comparative World History, East Asian, European, Latin American & Caribbean, Middle Eastern, South Asian, Southeast Asian, United States, or Gender and Women's History

The Department of History offers the master of arts and doctor of philosophy degrees as well as minor work for doctoral students in other fields. The program is designed to meet the needs of the Ph.D. candidate; most students earn the master's degree en route to the Ph.D. The department only occasionally accepts a student for terminal master's work.

The department trains resourceful researchers, committed teachers, and engaged public intellectuals. We offer a rigorous course of study that combines independent and collaborative work and that emphasizes scholarly and intellectual connectedness. The department strongly supports the Wisconsin Idea, the principle that education should influence and improve people's lives beyond the university classroom. For more than 100 years, this idea has guided the university's work. Students pursue a variety of careers, both inside and outside the academy.

Graduate students in the Department of History specialize in one of the following subfields or study programs, each of which sets its own programmatic requirements, consistent with Graduate School policies and subject to the approval of the department as a whole: African history; Central Asian history; East Asian history; European history; Latin American and Caribbean history; Middle Eastern history; South Asian history; Southeast Asian history; and United States history. See also Program in Gender and Women's History below. For details on the M.A. and Ph.D. requirements of the study programs, see the *History Graduate Handbook* or contact the graduate coordinator. For information about the faculty's areas of geographic and thematic specialization, see the department's faculty specialty page ([http://history.wisc.edu/faculty\\_specialty.htm](http://history.wisc.edu/faculty_specialty.htm)).

The department offers multiyear support packages to all incoming graduate students. Support begins with a fellowship in the first year and includes additional years of comparable support (teaching assistantships, project assistantships, and internal or external fellowships), provided the student makes satisfactory progress and performs well as a graduate assistant. Contact the graduate coordinator for details.

## OTHER DEGREE OPTIONS

### BRIDGE PROGRAM WITH AFRO-AMERICAN STUDIES

This is an academic partnership designed to allow students to complete the M.A. in Afro-American studies and the Ph.D. in history. It enables the Afro-American studies student who specializes in the history area to meet the basic requirements of the history M.A. while completing a degree in Afro-American studies. Students may apply simultaneously to the two departments or may apply to the Department of History after they begin their program in Afro-American studies, usually in the fall of the first or second M.A. year. For details, contact the graduate coordinator.

## JOINT PH.D. IN HISTORY AND HISTORY OF SCIENCE

Students who wish to obtain a joint Ph.D. in history and history of science, medicine, and technology are initially admitted to one of the departments, and should indicate interest in the joint Ph.D. program at that time. After completion of a master's degree in history or history of science, medicine, and technology (or an approved alternative), the student applies for admission to the other department and, at the same time, to a standing committee of the two departments for admission to the joint program. Having been admitted to the other department and to the joint program, the student then applies to the Graduate School for approval of the joint Ph.D. (See the Graduate School's academic policy regarding joint degrees (<http://grad.wisc.edu/acadpolicy>) for more information and deadlines.) The student's application to the standing committee should take the same form as required by the Graduate School and should be prepared in close consultation with department faculty/staff.

Students in the joint Ph.D. program are assigned a home department and follow the regulations of that department with regard to seminar requirements, language requirements, financial aid, and regulations for satisfactory progress. Since the joint Ph.D. meets the doctoral minor requirement of the Graduate School, no formal minor is required of students receiving a joint Ph.D. However, students who wish to have a minor field recorded on the transcript may complete a regular Option A or Option B minor, or the internal minor of the department.

The joint Ph.D. student's work is supervised by a committee consisting of three faculty members (two from the home department). The preliminary examinations test the student's competence in both history and history of science, medicine, and technology, balancing the material and fields between the two departments (e.g. two in each, or three in one and two in the other). The number of prelim fields must equal the number required of students majoring exclusively in history or in history of science, medicine, and technology, plus one. Preparation of the Ph.D. dissertation is guided by the student's supervising committee. Satisfactory completion and defense of the dissertation constitute the final requirements for the joint Ph.D. degree.

## INDIVIDUAL JOINT PH.D.

Students in other departments who wish to pursue a joint Ph.D. (one degree, two majors) with history must first be admitted to the history department. The proposal for the degree must be approved by the department's Graduate Council before it is submitted to the Graduate School. Students admitted to a joint Ph.D. will satisfy all the normal requirements of their field in history except the minor requirement.

## CONCENTRATION IN THE HISTORY OF GENDER AND WOMEN

The concentration in gender and women's history offers training with a specific geographic area of specialization while also providing opportunities for students to explore their research interests in gender and women's history in a global perspective.

Students may enter this concentration through any of the department's study programs. Students who wish to be considered for the concentration in gender and women's history should indicate this on their Graduate School application.

Students in the concentration of gender and women will generally choose courses within and meet all the requirements of their geographic areas of specialization, while also meeting some additional requirements for the women's/gender history concentration and working under the supervision

of a scholar active in the field of gender and women's history within their geographic area. All students in the concentration will take a team-taught core seminar on the comparative and transnational history of women and gender.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- History of Science, Medicine and Technology, Doctoral Minor (p. 389)
- History of Science, Medicine and Technology, M.A. (p. 389)
- History of Science, Medicine and Technology, Ph.D. (p. 391)
- History, Doctoral Minor (p. 392)
- History, M.A. (p. 393)
- History, Ph.D. (p. 394)

## PEOPLE

**Faculty:** Professors Sweet (chair), Bernault, Boswell, Chamberlain, Cohen, Cronon, Desan, Dunlavy, Enstad, Hansen, Hirsch, Johnson, Jones, Kantrowitz, Kleijwegt, Koshar, Mallon, McCoy, McDonald, Michels, Mitman, Neville, Plummer, Reese, Roberts, Scarano, Sharpless, Sommerville, Stern, Sweet, Wandel, Winichakul, Wink, Young; Associate Professors Cheng, Dennis, Enke, Hall, Kodesh, Ratner-Rosenghagen, Shoemaker, Thal; Assistant Professors Bitzan, Callaci, Chamedes, Chan, Ciancia, Dinces, Haynes, Hennessy, Ipsen, Kim, Kinzley, Lapina, Murthy, Taylor, Ussishkin, Whiting

## HISTORY OF SCIENCE, MEDICINE AND TECHNOLOGY, DOCTORAL MINOR

### REQUIREMENTS

Ph.D. candidates in other departments can earn a minor in history of science by taking 9 credits in history of science at the 300 level or above, including HIST SCI 720 Proseminar: Historiography and Methods. Courses must be completed with grades of B or better. No more than 3 credits taken in independent study courses (HIST SCI 990 Research and Thesis or HIST SCI 999 Independent Work) may be applied to the doctoral minor. Credit received for HIST SCI 950 History of Science Colloquium does not count toward the minor. Students are strongly encouraged to include a seminar among their minor courses. Graduate students who are interested in a history of science minor should see the department chair or the director of graduate studies before embarking on their minor program.

## PEOPLE

**Faculty:** Professors Hsia (chair), Broman, Keller, Lederer, Mitman, Nyhart, Schatzberg; Associate Professor Houck; Assistant Professors Gómez, Jackson, Nelson; Senior Lecturer Rider

## HISTORY OF SCIENCE, MEDICINE AND TECHNOLOGY, M.A.

The department offers the master of arts and the doctor of philosophy in history of science, medicine, and technology. Graduate instruction leads to research and teaching careers in the history of science, medical history, history of technology, intellectual and cultural history, science in general education programs, science writing, and museum work.

The department offers one of the largest and most diverse such programs in the United States. It addresses the development of the sciences, medicine, and technology in their social and intellectual contexts, including attention to institutions, philosophy, religion, literature, and visual and material culture. It also invites students to develop cognate interests in areas as diverse as science studies, environmental history, gender and women's studies, history of pharmacy, and philosophy of science. Faculty provide broad coverage, with expertise that spans Europe, the United States, and non-Western areas from the Middle Ages to the present, and ranges across the physical, biological, and social sciences to medicine and technology.

An M.A. degree for students entering with an advanced health professional degree is designed for students with doctoral training in one of the health professions who wish to pursue a master's degree with a concentration in medical history.

### REQUIREMENTS

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., with available track in history of medicine

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

M.A.: 18 credits

M.A.—history of medicine track: 24 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

21 out of 30 total credits must be completed in graduate-level coursework in the HSMT graduate program; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.A.: Total credits transferred for the M.A. degree may not exceed 12 credits. No credits earned more than 5 years before admission to the

M.A. program may be used. No credits carrying a grade below B may be applied toward graduate credit requirements.

M.A.—history of medicine track: Students can apply up to 6 credits from previous professional advanced degree work in one of the health professions from other institutions as well as UW–Madison toward the M.A. degree. No credits earned more than five years before admission to the M.A. program may be used. No credits carrying a grade below B are transferable.

### **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

M.A.: With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements. No credits carrying a grade below B are transferable.

M.A.—history of medicine track: No credits taken as a UW–Madison University Special student are allowed to count toward the degree.

### **CREDITS PER TERM ALLOWED**

15 credits

### **PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

### **OVERALL GRADUATE GPA REQUIREMENT**

3.00

### **OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### **PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### **ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## **ASSESSMENT AND EXAMINATIONS**

Contact the program for information on required assessments and examinations.

## **TIME CONSTRAINTS**

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## **LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

## **ADMISSIONS**

For admission to graduate study, a high-quality undergraduate record is more important than the particular program pursued. Graduate students have begun work in the History of Science with a wide variety of undergraduate majors ranging across the natural sciences, the social sciences, and the humanities, although some prior exposure to college-level study of history is desirable.

## **LEARNING OUTCOMES**

### **KNOWLEDGE AND SKILLS**

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry in HSMT.
- Identifies sources and assembles evidence pertaining to questions or problems in HSMT.
- Demonstrates understanding of science, medicine, and technology in a range of historical, social, cultural, and global contexts.
- Chooses the most appropriate methodologies and practices for a chosen research project.
- Demonstrates the ability to situate a historical question in relation to the existing literature, and to evaluate and synthesize information pertaining to questions or problems in HSMT.
- Is able to construct a persuasive historical argument that makes an original contribution to historical knowledge.
- Communicates clearly, in both written and oral form.

### **PROFESSIONAL CONDUCT**

- Recognizes and applies established principles of ethical and professional conduct.

## **PEOPLE**

**Faculty:** Professors Hsia (chair), Broman, Keller, Lederer, Mitman, Nyhart, Schatzberg; Associate Professor Houck; Assistant Professors Gómez, Jackson, Nelson; Senior Lecturer Rider

## HISTORY OF SCIENCE, MEDICINE AND TECHNOLOGY, PH.D.

The department offers the master of arts and the doctor of philosophy in history of science, medicine, and technology. Graduate instruction leads to research and teaching careers in the history of science, medical history, history of technology, intellectual and cultural history, science in general education programs, science writing, and museum work.

The department offers one of the largest and most diverse such programs in the United States. It addresses the development of the sciences, medicine, and technology in their social and intellectual contexts, including attention to institutions, philosophy, religion, literature, and visual and material culture. It also invites students to develop cognate interests in areas as diverse as science studies, environmental history, gender and women's studies, history of pharmacy, and philosophy of science. Faculty provide broad coverage, with expertise that spans Europe, the United States, and non-Western areas from the Middle Ages to the present, and ranges across the physical, biological, and social sciences to medicine and technology.

An M.A. degree for students entering with an advanced health professional degree is designed for students with doctoral training in one of the health professions who wish to pursue a master's degree with a concentration in medical history.

## JOINT PH.D. IN HISTORY AND HISTORY OF SCIENCE

Students who wish to obtain a joint Ph.D. in history and history of science, medicine, and technology are initially admitted to one of the degree programs, and should indicate interest in the joint Ph.D. program at that time. After completion of a master's degree in history or history of science, medicine, and technology (or an approved alternative), the student applies for admission to the other degree program and, at the same time, to a standing committee of the two degree programs for admission to the joint program. Having been admitted to the other degree program and to the joint program, the student then applies to the Graduate School for approval of the joint Ph.D. (See the Graduate School's academic policy regarding joint degrees (<http://grad.wisc.edu/acadpolicy>) for more information and deadlines.) The student's application to the standing committee should take the same form as required by the Graduate School and should be prepared in close consultation with department faculty/staff.

Students in the joint Ph.D. program are assigned a home degree program and follow the regulations of that program with regard to seminar requirements, language requirements, financial aid, and regulations for satisfactory progress. Since the joint Ph.D. meets the doctoral minor requirement of the Graduate School, no formal minor is required of students receiving a joint Ph.D. However, students who wish to have a minor field recorded on the transcript may complete a regular Option A or Option B minor.

The joint Ph.D. student's work is supervised by a committee consisting of three faculty members (two from the home degree program). The preliminary examinations test the student's competence in both history and history of science, medicine, and technology, balancing the material and fields between the two departments (e.g., two in each, or three in one and two in the other). The number of prelim fields must equal the number required of students majoring exclusively in history or in

history of science, medicine, and technology, plus one. Preparation of the Ph.D. dissertation is guided by the student's supervising committee. Satisfactory completion and defense of the dissertation constitute the final requirements for the joint Ph.D. degree.

## FUNDING

Prospective students should see the program website (<https://histsci.wisc.edu/grads/funding.shtml>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of the required coursework must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Total credits transferred for the Ph.D. requirements, including those approved for the M.A., may not exceed 19 credits. No credits earned more than ten years before admission to the Ph.D. program may be used. A maximum of 5 credits earned between five and ten years before admission to the Ph.D. program may be used. No credits carrying a grade below B may be applied toward graduate credit requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements. No credits carrying a grade below B are transferable.

**CREDITS PER TERM ALLOWED**

15 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

**DOCTORAL MINOR/BREADTH REQUIREMENTS**

Doctoral students must complete a doctoral minor.

**OVERALL GRADUATE GPA REQUIREMENT**

3.00

**OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

**PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

**ADVISOR**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

**ASSESSMENT AND EXAMINATIONS**

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

**TIME CONSTRAINTS**

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

**LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

**ADMISSIONS**

For admission to graduate study, a high-quality undergraduate record is more important than the particular program pursued. Graduate students have begun work in the History of Science with a wide variety of undergraduate majors ranging across the natural sciences, the social sciences, and the humanities, although some prior exposure to college-level study of history is desirable.

**LEARNING OUTCOMES****KNOWLEDGE AND SKILLS**

- Regardless of whether or not an individual is awarded a master's degree in HSMT at the UW–Madison, the doctoral level learning goals are inclusive of the master's level learning goals.
- Articulates research problems clearly and understands the limits of current theories, knowledge, or practices within HSMT.
- Pushes the boundaries of current knowledge in HSMT in formulating research questions, in the selection or use of primary sources, or in interpreting evidence.
- Demonstrates breadth within their learning experiences.
- Communicates complex ideas in a clear and understandable manner.
- Gains appropriate experience relating to designing and teaching university-level courses.
- Is able to articulate the broader significance of their work and the discipline of HSMT to scholars in other fields or disciplines and to the wider public.

**PROFESSIONAL CONDUCT**

- Fosters ethical and professional conduct.

**PEOPLE**

**Faculty:** Professors Hsia (chair), Broman, Keller, Lederer, Mitman, Nyhart, Schatzberg; Associate Professor Houck; Assistant Professors Gómez, Jackson, Nelson; Senior Lecturer Rider

**HISTORY, DOCTORAL MINOR****REQUIREMENTS**

Students in other departments who wish to pursue a minor in history must reach agreement (before beginning minor course work) on an appropriate program of study with a history faculty member, who serves as the minor advisor. The program must include at least 9 credits of graduate-level work. Students are encouraged to take at least six credits of work in graduate seminars. See the *History Graduate Handbook* (<http://history.wisc.edu/graduate/graduatehandbook.pdf>) or contact the graduate coordinator for details.

**PEOPLE**

**Faculty:** Professors Sweet (chair), Bernault, Boswell, Chamberlain, Cohen, Cronon, Desan, Dunlavy, Enstad, Hansen, Hirsch, Johnson,



Jones, Kantrowitz, Kleijwegt, Koshar, Mallon, McCoy, McDonald, Michels, Mitman, Neville, Plummer, Reese, Roberts, Scarano, Sharpless, Sommerville, Stern, Sweet, Wandel, Winichakul, Wink, Young; Associate Professors Cheng, Dennis, Enke, Hall, Kodesh, Ratner-Rosenhagen, Shoemaker, Thal; Assistant Professors Bitzan, Callaci, Chamedes, Chan, Ciancia, Dinces, Haynes, Hennessy, Ipsen, Kim, Kinzley, Lapina, Murthy, Taylor, Ussishkin, Whiting

## HISTORY, M.A.

The Department of History offers the master of arts and doctor of philosophy degrees as well as minor work for doctoral students in other fields. The program is designed to meet the needs of the Ph.D. candidate; most students earn the master's degree en route to the Ph.D. The department only occasionally accepts a student for terminal master's work.

The department trains resourceful researchers, committed teachers, and engaged public intellectuals. We offer a rigorous course of study that combines independent and collaborative work and that emphasizes scholarly and intellectual connectedness. The department strongly supports the Wisconsin Idea, the principle that education should influence and improve people's lives beyond the university classroom. For more than 100 years, this idea has guided the university's work. Students pursue a variety of careers, both inside and outside the academy.

Graduate students in the Department of History specialize in one of the following subfields or study programs, each of which sets its own programmatic requirements, consistent with Graduate School policies and subject to the approval of the department as a whole: African history; Central Asian history; East Asian history; European history; Latin American and Caribbean history; Middle Eastern history; South Asian history; Southeast Asian history; and United States history. See also Program in Gender and Women's History below. For details on the M.A. and Ph.D. requirements of the study programs, see the *History Graduate Handbook* or contact the graduate coordinator. For information about the faculty's areas of geographic and thematic specialization, see the department's faculty specialty page ([http://history.wisc.edu/faculty\\_specialty.htm](http://history.wisc.edu/faculty_specialty.htm)).

The department offers multiyear support packages to all incoming graduate students. Support begins with a fellowship in the first year and includes additional years of comparable support (teaching assistantships, project assistantships, and internal or external fellowships), provided the student makes satisfactory progress and performs well as a graduate assistant. Contact the graduate coordinator for details.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count up to 6 credits of graduate coursework from other institutions.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students are allowed to count up to 7 credits of UW-Madison undergraduate coursework.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count coursework numbered 300 or above taken as a UW-Madison University Special student, up to a maximum of 15 credits.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended

from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The department requires an applicant to have a bachelor's degree from an accredited institution, with a minimum overall grade point average of 3.0 (on a 4.0 scale), and a minimum 3.0 grade point average in history courses taken as an undergraduate (although successful applicants generally have far higher GPAs). The department occasionally admits superior students who have not had the equivalent of a history major. The department requires the Graduate Record Exam. The GRE must have been taken during the five years preceding application to the graduate program. Those taking the GRE need take only the general aptitude portion of the exam.

Applicants must also submit official transcripts from all colleges attended, three letters of recommendation, the selection of study sheet, and a statement of purpose (personal statement). All fields require a writing sample. International students must submit Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS) or Michigan English Language Assessment Battery (MELAB) scores if English is not the language of the country of the student's permanent residence. Upon admission, they must also take the SPEAK test, the institutional version of the Test for Spoken English, in order to hold the teaching assistantships that constitute an element of multiyear support packages.

Each applicant is judged on the basis of previous academic record, letters of recommendation (especially those provided by historians or scholars in related fields), the personal statement, the writing sample, and other criteria including GRE scores.

Admission is highly competitive. The deadline for application is December 1. Although the department may review exceptional applications arriving after that date, most slots are filled in the review that occurs in January.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates and critiques the theories, research methods, and approaches to historical inquiry in the student's primary field of study.
- Demonstrates understanding of the primary field of study in a historical and global context.
- Is able to identify and make appropriate use of relevant historical sources.
- Demonstrates the ability to evaluate and synthesize large bodies of scholarship or evidence.
- Is able to construct a significant and persuasive historical argument that makes an original contribution to historical knowledge.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Recognizes and applies established principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Sweet (chair), Bernault, Boswell, Chamberlain, Cohen, Cronon, Desan, Dunlavy, Enstad, Hansen, Hirsch, Johnson, Jones, Kantrowitz, Kleijwegt, Koshar, Mallon, McCoy, McDonald, Michels, Mitman, Neville, Plummer, Reese, Roberts, Scarano, Sharpless, Sommerville, Stern, Sweet, Wandel, Winichakul, Wink, Young; Associate Professors Cheng, Dennis, Enke, Hall, Kodesh, Ratner-Rosenhagen, Shoemaker, Thal; Assistant Professors Bitzan, Callaci, Chamedes, Chan, Ciancia, Dinces, Haynes, Hennessy, Ipsen, Kim, Kinzley, Lapina, Murthy, Taylor, Ussishkin, Whiting

## HISTORY, PH.D.

The Department of History offers the master of arts and doctor of philosophy degrees as well as minor work for doctoral students in other fields. The program is designed to meet the needs of the Ph.D. candidate; most students earn the master's degree en route to the Ph.D. The department only occasionally accepts a student for terminal master's work.

The department trains resourceful researchers, committed teachers, and engaged public intellectuals. We offer a rigorous course of study that combines independent and collaborative work and that emphasizes scholarly and intellectual connectedness. The department strongly supports the Wisconsin Idea, the principle that education should influence and improve people's lives beyond the university classroom. For more than 100 years, this idea has guided the university's work. Students pursue a variety of careers, both inside and outside the academy.

Graduate students in the Department of History specialize in one of the following subfields or study programs, each of which sets its own programmatic requirements, consistent with Graduate School policies and subject to the approval of the department as a whole: African history; Central Asian history; East Asian history; European history; Latin American and Caribbean history; Middle Eastern history; South Asian history; Southeast Asian history; and United States history. See also Program in Gender and Women's History below. For details on the

M.A. and Ph.D. requirements of the study programs, see the *History Graduate Handbook* or contact the graduate coordinator. For information about the faculty's areas of geographic and thematic specialization, see the department's faculty specialty page ([http://history.wisc.edu/faculty\\_specialty.htm](http://history.wisc.edu/faculty_specialty.htm)).

The department offers multiyear support packages to all incoming graduate students. Support begins with a fellowship in the first year and includes additional years of comparable support (teaching assistantships, project assistantships, and internal or external fellowships), provided the student makes satisfactory progress and performs well as a graduate assistant. Contact the graduate coordinator for details.

## OTHER DEGREE OPTIONS

### Bridge Program with Afro-American Studies

This is an academic partnership designed to allow students to complete the M.A. in Afro-American studies and the Ph.D. in history. It enables the Afro-American studies student who specializes in the history area to meet the basic requirements of the history M.A. while completing a degree in Afro-American studies. Students may apply simultaneously to the two departments or may apply to the Department of History after they begin their program in Afro-American studies, usually in the fall of the first or second M.A. year. For details, contact the graduate coordinator.

### Joint Ph.D. in History and History of Science

Students who wish to obtain a joint Ph.D. in history and history of science, medicine, and technology are initially admitted to one of the departments, and should indicate interest in the joint Ph.D. program at that time. After completion of a master's degree in history or history of science, medicine, and technology (or an approved alternative), the student applies for admission to the other department and, at the same time, to a standing committee of the two departments for admission to the joint program. Having been admitted to the other department and to the joint program, the student then applies to the Graduate School for approval of the joint Ph.D. (See the Graduate School's academic policy regarding joint degrees (<http://grad.wisc.edu/acadpolicy>) for more information and deadlines.) The student's application to the standing committee should take the same form as required by the Graduate School and should be prepared in close consultation with department faculty/staff.

Students in the joint Ph.D. program are assigned a home department and follow the regulations of that department with regard to seminar requirements, language requirements, financial aid, and regulations for satisfactory progress. Since the joint Ph.D. meets the doctoral minor requirement of the Graduate School, no formal minor is required of students receiving a joint Ph.D. However, students who wish to have a minor field recorded on the transcript may complete a regular Option A or Option B minor, or the internal minor of the department.

The joint Ph.D. student's work is supervised by a committee consisting of three faculty members (two from the home department). The preliminary examinations test the student's competence in both history and history of science, medicine, and technology, balancing the material and fields between the two departments (e.g. two in each, or three in one and two in the other). The number of prelim fields must equal the number required of students majoring exclusively in history or in history of science, medicine, and technology, plus one. Preparation of the Ph.D. dissertation is guided by the student's supervising committee. Satisfactory completion and defense of the dissertation constitute the final requirements for the joint Ph.D. degree.

### Individual Joint Ph.D.

Students in other departments who wish to pursue a joint Ph.D. (one degree, two majors) with history must first be admitted to the history department. The proposal for the degree must be approved by the department's Graduate Council before it is submitted to the Graduate School. Students admitted to a joint Ph.D. will satisfy all the normal requirements of their field in history except the minor requirement.

### Concentration in the History of Gender and Women

The concentration in gender and women's history offers training with a specific geographic area of specialization while also providing opportunities for students to explore their research interests in gender and women's history in a global perspective.

Students may enter this concentration through any of the department's study programs. Students who wish to be considered for the concentration in gender and women's history should indicate this on their Graduate School application.

Students in the concentration of gender and women will generally choose courses within and meet all the requirements of their geographic areas of specialization, while also meeting some additional requirements for the women's/gender history concentration and working under the supervision of a scholar active in the field of gender and women's history within their geographic area. All students in the concentration will take a team-taught core seminar on the comparative and transnational history of women and gender.

## FUNDING

Prospective students should see the program website ([http://history.wisc.edu/graduate\\_fundingoffered.htm](http://history.wisc.edu/graduate_fundingoffered.htm)) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## **PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

With program approval, students are allowed to count up to 12 credits of graduate coursework from other institutions.

## **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

With program approval, students are allowed to count up to 7 credits of UW–Madison undergraduate coursework.

## **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With program approval, students are allowed to count coursework numbered 300 or above taken as a UW–Madison University Special student, up to a maximum of 15 credits.

## **CREDITS PER TERM ALLOWED**

Non-dissertator students: 15 credits

Dissertators: 3 credits related to their dissertations

## **PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

## **DOCTORAL MINOR/BREADTH REQUIREMENTS**

Doctoral students must complete a doctoral minor.

## **OVERALL GRADUATE GPA REQUIREMENT**

3.00

## **OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## **PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## **ADVISOR**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## **ASSESSMENT AND EXAMINATIONS**

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## **TIME CONSTRAINTS**

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## **LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

## **ADMISSIONS**

The department requires an applicant to have a bachelor's degree from an accredited institution, with a minimum overall grade point average of 3.0 (on a 4.0 scale), and a minimum 3.0 grade point average in history courses taken as an undergraduate (although successful applicants generally have far higher GPAs). The department occasionally admits superior students who have not had the equivalent of a history major. The department requires the Graduate Record Exam. The GRE must have been taken during the five years preceding application to the graduate program. Those taking the GRE need take only the general aptitude portion of the exam.

Applicants must also submit official transcripts from all colleges attended, three letters of recommendation, the selection of study sheet, and a statement of purpose (personal statement). All fields require a writing sample. International students must submit Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS) or Michigan English Language Assessment Battery (MELAB) scores if English is not the language of the country of the student's permanent residence. Upon admission, they must also take the SPEAK test, the institutional version of the Test for Spoken English, in order to hold the teaching assistantships that constitute an element of multiyear support packages.

Each applicant is judged on the basis of previous academic record, letters of recommendation (especially those provided by historians or scholars in related fields), the personal statement, the writing sample, and other criteria including GRE scores.

Admission is highly competitive. The deadline for application is December 1. Although the department may review exceptional applications arriving after that date, most slots are filled in the review that occurs in January.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- By the end of their degree work, students receiving a doctoral degree in the history department are expected to achieve the learning goals specified for the master's degree as well as the following learning goals.
- Articulates research problems clearly and understands the limits of current theories, knowledge, or practices in the discipline of history.
- Pushes the boundaries of current historical knowledge in formulating research questions, in the selection or use of primary sources, or in interpreting evidence.
- Demonstrates breadth of historical and cultural knowledge.
- Is able to articulate the broader significance of their work to scholars in other fields or disciplines and to the broader public.
- Is able to design and teach courses at the undergraduate or graduate level.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Sweet (chair), Bernault, Boswell, Chamberlain, Cohen, Cronon, Desan, Dunlavy, Enstad, Hansen, Hirsch, Johnson, Jones, Kantrowitz, Kleijwegt, Koshar, Mallon, McCoy, McDonald, Michels, Mitman, Neville, Plummer, Reese, Roberts, Scarano, Sharpless, Sommerville, Stern, Sweet, Wandel, Winichakul, Wink, Young; Associate Professors Cheng, Dennis, Enke, Hall, Kodesh, Ratner-Rosenhagen, Shoemaker, Thal; Assistant Professors Bitzan, Callaci, Chamedes, Chan, Ciancia, Dinces, Haynes, Hennessy, Ipsen, Kim, Kinzley, Lapina, Murthy, Taylor, Ussishkin, Whiting

# HISTORY OF MEDICINE

**Administrative Unit:** Medical History and Bioethics

**College/School:** School of Medicine and Public Health

**Minors and Certificates:** Doctoral Minor

The department offers graduate instruction in the history of European, American and non-Western medicine and public health. M.A. and Ph.D. degrees are awarded in conjunction with the history of science department. In addition, a doctoral minor in the history of medicine is available. Information on the major program History of Science, Medicine, and Technology can be found under the heading History (p. 388) in this Guide. A departmental program in medical ethics offers interdisciplinary courses in bioethics, philosophy, and law.

The department welcomes graduate students from a variety of backgrounds in the sciences and humanities and allows students flexibility in meeting their academic needs.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- History of Medicine, Doctoral Minor (p. 398)

## PEOPLE

**Faculty:** Professors Lederer (chair), Broman, Charo, Hausman, Hogle, Keller, Mitman, Ossorio; Associate Professors Houck, Kelleher, Streiffer, Wendland; Assistant Professors DeLancey, Gomez

## HISTORY OF MEDICINE, DOCTORAL MINOR

### REQUIREMENTS

Requirements for a minor in history of medicine are a minimum of 10 credits in MED HIST courses, including at least one 900-level seminar.

### ADMISSIONS

Please contact the chair, Susan Lederer, for additional information (selederer@wisc.edu).

## PEOPLE

**Faculty:** Professors Lederer (chair), Broman, Charo, Hausman, Hogle, Keller, Mitman, Ossorio; Associate Professors Houck, Kelleher, Streiffer, Wendland; Assistant Professors DeLancey, Gomez

## HORTICULTURE

**Administrative Unit:** Horticulture

**College/School:** College of Agricultural and Life Sciences

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The department provides graduate training leading to the master of science and the doctor of philosophy in horticulture. Specializations are available in several aspects of crop science: organic and sustainable horticulture, diversified crop production for urban and regional food systems, environmental impact of horticultural practices, environmental regulation of plant growth and development, plant breeding, cytogenetics, biochemistry and molecular biology of horticultural plants, microculture and biotechnology, weed control and herbicide physiology, and biostatistics. Students have the opportunity to develop their research projects using vegetables, fruits, trees, ornamentals, turf, specialty crops, or model species such as *Arabidopsis thaliana*.

The department houses research labs, controlled environment chambers, and greenhouse facilities. Field-plot areas with associated storage and laboratory facilities are available at the UW–Madison Arboretum, Horticulture Research Farm at Arlington, and the Agriculture Research Stations managed by the College of Agricultural and Life Sciences at selected locations throughout the state. In conjunction with the farm at Sturgeon Bay, the world's largest collection of tuber-bearing Solanums is maintained by the Inter-Regional Potato Introduction Project and is available for research use.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Horticulture, Doctoral Minor (p. 399)
- Horticulture, M.S. (p. 399)
- Horticulture, Ph.D. (p. 400)

## PEOPLE

**Faculty:** Professors Goldman (chair), Bamberg, Colquhoun, Havey, Jiang, Krysan, Nienhuis, Palta, Patterson, Simon, Spooner, Yandell; Associate Professors Bethke, Jansky, Jull, Weng; Assistant Professors Atucha, Dawson, Endelman, Zalapa

## HORTICULTURE, DOCTORAL MINOR

### REQUIREMENTS

Doctoral students in other departments who wish to receive a minor in horticulture must complete a minimum of 10 graduate credits in horticulture, including 2 credits of HORT 910 Seminar. Interested students should contact the department for more information.

## PEOPLE

**Faculty:** Professors Goldman (chair), Bamberg, Colquhoun, Havey, Jiang, Krysan, Nienhuis, Palta, Patterson, Simon, Spooner, Yandell; Associate Professors Bethke, Jansky, Jull, Weng; Assistant Professors Atucha, Dawson, Endelman, Zalapa

## HORTICULTURE, M.S.

The department provides graduate training leading to the master of science and the doctor of philosophy in horticulture. Specializations are available in several aspects of crop science: organic and sustainable horticulture, diversified crop production for urban and regional food systems, environmental impact of horticultural practices, environmental regulation of plant growth and development, plant breeding, cytogenetics, biochemistry and molecular biology of horticultural plants, microculture and biotechnology, weed control and herbicide physiology, and biostatistics. Students have the opportunity to develop their research projects using vegetables, fruits, trees, ornamentals, turf, specialty crops, or model species such as *Arabidopsis thaliana*.

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## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

18 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Allowed; coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Students are allowed to count no more than 7 credits numbered 300 or above toward the minimum graduate degree credit requirement; if those courses are numbered 700 or above they may count toward the minimum graduate coursework requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The department accepts applications for fall, spring, and summer entry.

The applicant's academic preparation should include fundamental courses in the plant sciences such as botany, bacteriology, genetics, and physiology, as well as courses in chemistry (general, organic, quantitative), physics, mathematics, and biochemistry. The academic average should be at least 3.0 (on a 4.0 scale) with evidence of proficiency in subjects related to agriculture and plant sciences.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Articulates the theories, research methods, and approaches to inquiry used in the field of horticulture.
- Identifies sources and assembles evidence pertaining to questions in the field of horticulture.
- Understands the primary field of horticulture in a global context.
- Selects and utilizes the most appropriate methodologies and practices.
- Synthesizes information pertaining to questions or challenges in the field of horticulture.
- Communicates clearly in ways appropriate to the field of horticulture.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical conduct.

## PEOPLE

**Faculty:** Professors Goldman (chair), Bamberg, Colquhoun, Havey, Jiang, Krysan, Nienhuis, Palta, Patterson, Simon, Spooner, Yandell; Associate Professors Bethke, Jansky, Jull, Weng; Assistant Professors Atucha, Dawson, Endelman, Zalapa

## HORTICULTURE, PH.D.

The department provides graduate training leading to the master of science and the doctor of philosophy in horticulture. Specializations are available in several aspects of crop science: organic and sustainable horticulture, diversified crop production for urban and regional food systems, environmental impact of horticultural practices, environmental regulation of plant growth and development, plant breeding, cytogenetics,



biochemistry and molecular biology of horticultural plants, microculture and biotechnology, weed control and herbicide physiology, and biostatistics. Students have the opportunity to develop their research projects using vegetables, fruits, trees, ornamentals, turf, specialty crops, or model species such as *Arabidopsis thaliana*.

The department houses research labs, controlled environment chambers, and greenhouse facilities. Field-plot areas with associated storage and laboratory facilities are available at the UW–Madison Arboretum, Horticulture Research Farm at Arlington, and the Agriculture Research Stations managed by the College of Agricultural and Life Sciences at selected locations throughout the state. In conjunction with the farm at Sturgeon Bay, the world's largest collection of tuber-bearing Solanums is maintained by the Inter-Regional Potato Introduction Project and is available for research use.

## FUNDING

Prospective students should see the program website (<http://horticulture.wisc.edu/academics/graduate-program-2/funding>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Allowed; coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Students are allowed to count no more than 7 credits numbered 300 or above toward the minimum graduate degree credit requirement; if those courses are numbered 700 or above they may count toward the minimum graduate coursework requirement. Coursework earned ten

or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

### TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students

completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The department accepts applications for fall, spring, and summer entry.

The applicant's academic preparation should include fundamental courses in the plant sciences such as botany, bacteriology, genetics, and physiology, as well as courses in chemistry (general, organic, quantitative), physics, mathematics, and biochemistry. The academic average should be at least 3.0 (on a 4.0 scale) with evidence of proficiency in subjects related to agriculture and plant sciences.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates challenges, frontiers and limits with respect to knowledge within the field of horticulture.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of horticulture.
- Creates research that makes a substantive contribution to the field of horticulture.
- Demonstrates breadth within their learning experiences.
- Communicates complex or ambiguous ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical conduct and professional guidelines.

## PEOPLE

**Faculty:** Professors Goldman (chair), Bamberg, Colquhoun, Havey, Jiang, Krysan, Nienhuis, Palta, Patterson, Simon, Spooner, Yandell; Associate Professors Bethke, Jansky, Jull, Weng; Assistant Professors Atucha, Dawson, Endelman, Zalapa

# HUMAN DEVELOPMENT AND FAMILY STUDIES

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL

- Human Development and Family Studies, Doctoral Minor (p. 403)

## HUMAN DEVELOPMENT AND FAMILY STUDIES, DOCTORAL MINOR

Any student enrolled in a UW–Madison doctoral program can pursue a doctoral minor in human development and family studies. The graduate program in HDFS, located within the School of Human Ecology, offers courses on individual and family development throughout the lifespan and across ecological settings. These courses focus on a range of topics, including risk and resilience throughout the life span, competent child rearing, positive development, poverty and the family, mindfulness and contemplative practices for child and family well-being, development in multicultural contexts, policy, adult development and relationships, adolescence, and aging and the family. Courses that address the applications of research to practice are also part of the curriculum. Recent offerings include courses in prevention science, family policy, evidence-based intervention, and bridging the gap between research and practice. Reflecting the multidisciplinary orientation of the program, faculty and students employ a wide array of methods in their work. Faculty possess expertise in areas as diverse as longitudinal modeling, community-based research, interpretive interviewing, program evaluation, observational methods, survey methodology, action research, and ethnography. The program explicitly values both qualitative and quantitative methods. For more information, see this link (<https://sohe.wisc.edu/graduate-students/research-and-creative-scholarship/hdfs-graduate-program>).

## REQUIREMENTS

(Must comply with Graduate School Policy for Option A Minors.)

The HDFS doctoral minor requires at least 9 credits of HDFS coursework, with no more than 3 credits below the 700 level. HDFS courses that are cross-listed with another department should be taken as an HDFS course. Students must receive a grade of B or better in each course.

## ADMISSIONS

Graduate students interested in pursuing an Option A doctoral minor should complete the minor agreement form available on the HDFS website (<https://sohe.wisc.edu/graduate-students/research-and-creative-scholarship/hdfs-graduate-program/forms-and-documents>) and consult with the chair of the graduate program, who will help them identify an HDFS faculty member to serve as their faculty advisor.

## HUMAN ECOLOGY—SCHOOL-WIDE

**Administrative Unit:** School of Human Ecology

**College/School:** School of Human Ecology

**Admitting Plans:** MFA, M.S., Ph.D.

**Degrees Offered:** MFA, M.S., Ph.D.

**Minors and Certificates:** Doctoral Minors in Human Development and Family Studies, and in Human Ecology

**Named Options:** Civil Society and Community Research (Ph.D.); Consumer Behavior and Family Economics (M.S./Ph.D.); Design Studies (M.S./Ph.D./MFA); Human Development and Family Studies (M.S./Ph.D.);

Human ecology is the study of the complex relationships between human beings and their environments. The school offers advanced degrees with four program specializations: civil society and community research, consumer behavior and family economics, design studies, and human development and family studies. Each program option has its own faculty, curriculum, and requirements. Prospective graduate students apply for the human ecology degree, the umbrella degree under which the degree options are offered. Inquiries should be made to the individual department offering the desired program specialization.

All of the school's graduate programs provide opportunities for interdisciplinary, advanced course work with an intensive research or creative discovery experience. Faculty and students are also involved with institutes and centers administered in the School of Human Ecology and across the campus such as the Arts Institute, Center for Child and Family Well-Being, the Center for Financial Security, the Institute on Aging, the Kohl's Center for Retailing Excellence, the Nelson Institute for Environmental Studies, the Center for Non-Profits, the Institute for Research on Poverty, and the Waisman Center. With access to courses and resources in and beyond the School of Human Ecology, graduate students in human ecology's program options gain the skills and specialized expertise that will be required to be successful scholars, artists/designers, and workers in academic, service, government, and business settings worldwide.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Human Ecology, Doctoral Minor (p. 404)
- Human Ecology, M.S. (p. 405)
- Human Ecology, MFA (p. 405)
- Human Ecology, Ph.D. (p. 405)

### PEOPLE

**Faculty:** *Civil Society and Community Studies:* Professors Jasper (chair), Flanagan, Morales, Zeldin; Associate Professors Bakken, Christens; Assistant Professors Gaddis, Horowitz, Sarmiento, Sparks  
*Consumer Behavior and Family Economics:* Professors Wong (chair), Bartfeld, Zepeda; Associate Professor Collins; Assistant Professors Addo, Warmath

*Design Studies:* Professors Rengel (chair), Angus, Dong, Sarmadi, Nelson; Associate Professors Hark, Kallenborn, Shin; Assistant Professors Fairbanks, Penick, Ponto

*Human Development and Family Studies:* Professors Dilworth-Bart (chair), Bogenschneider, Raison, Poehlmann-Tynan, Roberts, Small; Associate Professors Duncan, Hartley, Nix, Papp; Assistant Professors Halpern-Meekin, Kirkorian, Litzelman

## HUMAN ECOLOGY, DOCTORAL MINOR

Any student enrolled in a UW–Madison doctoral program can pursue a doctoral minor in human ecology. The graduate program within the School of Human Ecology (SoHE) provides rich interdisciplinary training and scholarship focused on exploring the human condition and well-being in relation to ecological settings—physical, social, community, and built surroundings. The school's philosophy is that individual development and well-being are promoted through interactions with ecological settings. Research, creativity, teaching, and outreach are directed toward a positive impact on these settings and the patterns of human behavior within them. Faculty members possess expertise in areas as diverse as longitudinal modeling, community-based research, interpretive interviewing, program evaluation, observational methods, survey methodology, action research, and ethnography.

### REQUIREMENTS

The human ecology doctoral minor requires at least 9 credits taken through a combination of coursework in at least two different School of Human Ecology departments: Civil Society and Community Studies (CSCS); Consumer Science (CNSR SCI), Design Studies (DS), Human Development and Family Studies (HDFS), and Interdisciplinary–Human Ecology (INTER-HE). No more than 3 credits can be taken below the 700 level. Human Ecology courses that are cross-listed with another department should be enrolled in through the respective Human Ecology department. Students must receive a grade of B or better in each course.

### ADMISSIONS

Graduate students interested in pursuing an Option A doctoral minor should complete the attached minor agreement form and consult with the chair of the Graduate Program in Human Ecology who will help them identify a SoHE faculty member to serve as their faculty advisor.

### PEOPLE

**Faculty:** *Civil Society and Community Studies:* Professors Jasper (chair), Flanagan, Morales, Zeldin; Associate Professors Bakken, Christens; Assistant Professors Gaddis, Horowitz, Sarmiento, Sparks  
*Consumer Behavior and Family Economics:* Professors Wong (chair), Bartfeld, Zepeda; Associate Professor Collins; Assistant Professors Addo, Warmath

*Design Studies:* Professors Rengel (chair), Angus, Dong, Sarmadi, Nelson; Associate Professors Hark, Kallenborn, Shin; Assistant Professors Fairbanks, Penick, Ponto

*Human Development and Family Studies:* Professors Dilworth-Bart (chair), Bogenschneider, Raison, Poehlmann-Tynan, Roberts, Small; Associate

Professors Duncan, Hartley, Nix, Papp; Assistant Professors Halpern-Meehin, Kirkorian, Litzelman

# INDUSTRIAL AND SYSTEMS ENGINEERING

**Administrative Unit:** Industrial and Systems Engineering

**College/School:** College of Engineering

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor in Industrial and Systems Engineering; Graduate/Professional Certificate in Patient Safety

**Named Options:** Human Factors and Systems Engineering (M.S.); Systems Engineering and Analysis (M.S.)

The Department of Industrial and Systems Engineering offers opportunities for graduate study leading to the master of science and the doctor of philosophy degrees in industrial engineering. Five areas of specialization are available, each designed to produce graduates capable of leading new and developing areas within industrial and systems engineering. The five areas, each with its own courses of study and admission procedures, are: decision science/operations research, health systems, human factors and ergonomics, manufacturing and production systems, and quality engineering. Since each area offers faculty, research, and courses that are unique, both with respect to each other and to much of industrial and systems engineering taught elsewhere, it is advisable to see Graduate Program (<https://www.engr.wisc.edu/academics/graduate-academics>) on the department website for further information.

The specialization in *decision science/operations research* trains students in analytical methodologies useful for solving decision problems, especially problems that involve the allocation of scarce resources. Graduate study focuses on applied probability and statistics, decision analysis, optimization modeling, and optimization algorithms.

The *health systems* specialization seeks to train students to look at broad issues in health care, including long-term care, prevention, quality improvement, health care financing, and system evaluation. Understanding how people solve problems is a basic requirement for health systems engineers, who must apply scientific methods in a value-laden setting.

The specialization in *human factors and ergonomics* is concerned with the quality of work lives, ergonomics, and occupational safety and health for both workers and management. By examining, designing, testing, and evaluating the workplace and how people interact within it, human systems engineers can create productive, safe, and satisfying work environments.

The specialization in *manufacturing and production systems* is intended to provide the skills and knowledge necessary to compete successfully in a manufacturing environment. These skills include knowledge of the theory of manufacturing materials and processes and their control; knowledge of the essentials of manufacturing systems design and analysis; and knowledge of and hands-on experience with modern manufacturing technology.

The *quality engineering* specialization is designed to provide the necessary background for quality engineering careers in industry or government. Emphasis is on the foundations of quality improvement, job and organizational design, and process control.

The graduate/professional certificate in patient safety is an interdisciplinary effort between the Department of Industrial and Systems Engineering, School of Nursing, School of Pharmacy, Department of Medical Physics, and Department of Population Health Sciences.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Industrial Engineering, Doctoral Minor (p. 406)
- Industrial Engineering, M.S. (p. 407)
- Industrial Engineering, Ph.D. (p. 408)
- Patient Safety, Graduate/Professional Certificate (p. 410)

## PEOPLE

**Faculty:** Professors Bier (chair), Brennan, Carayon, Lee, Li, Linderoth, Radwin, Shi, Vanderheiden, Veeramani, Zhou; Associate Professors Alagoz, Krishnamurthy, Li, Luedtke, McLay, Wiegmann; Assistant Professors: Del Pia, Liu, Wang, Werner; Affiliate Professors Bowers, Burnside, Carnes, DeCroix, Ferris, Greenberg, Finster, Maravelias, Noyce, Pugh, Qian, Sesto, Shah, Smith, Steege, Thomadsen, Vanness, Wright

## INDUSTRIAL ENGINEERING, DOCTORAL MINOR

Industrial and systems engineering is an engineering discipline focusing on the design, analysis, improvement and implementation of complex systems that include humans, materials, equipment and other resources. The learning outcome of the doctoral minor is to gain general proficiency and distinctive attainment in one or more concentration areas in industrial and systems engineering, including: decision science and operations research, manufacturing production systems, health systems engineering, and human factors and ergonomics.

## REQUIREMENTS

A Ph.D. candidate from another department taking an Option A doctoral minor in industrial engineering must complete a minimum of nine credits of ISyE courses numbered 300 or above. A minimum GPA of 3.20 is required for this set of courses. A course with a grade of C or lower cannot be used to satisfy the minor requirement. Students may transfer up to three credits from another university to satisfy the minor requirement, subject to the approval of the Academic Affairs Cluster.

## ADMISSIONS

For admissions, please contact the ISyE coordinator in the Academic Affairs Cluster (<https://www.engr.wisc.edu/academics/student-services/academic-advising/graduate-engineering-students>).

## PEOPLE

**Faculty:** Professors Bier (chair), Brennan, Carayon, Lee, Li, Linderoth, Radwin, Shi, Vanderheiden, Veeramani, Zhou; Associate Professors Alagoz, Krishnamurthy, Li, Luedtke, McLay, Wiegmann; Assistant

Professors: Del Pia, Liu, Wang, Werner; Affiliate Professors Bowers, Burnside, Carnes, DeCroix, Ferris, Greenberg, Finster, Maravelias, Noyce, Pugh, Qian, Sesto, Shah, Smith, Steege, Thomadsen, Vanness, Wright

## INDUSTRIAL ENGINEERING, M.S.

The Department of Industrial and Systems Engineering offers opportunities for graduate study leading to the master of science and the doctor of philosophy degrees in industrial engineering. Five areas of specialization are available, each designed to produce graduates capable of leading new and developing areas within industrial and systems engineering. The five areas, each with its own courses of study and admission procedures, are: decision science/operations research, health systems, human factors and ergonomics, manufacturing and production systems, and quality engineering. Since each area offers faculty, research, and courses that are unique, both with respect to each other and to much of industrial and systems engineering taught elsewhere, it is advisable to see Graduate Program (<https://www.engr.wisc.edu/academics/graduate-academics>) on the department website for further information.

The specialization in *decision science/operations research* trains students in analytical methodologies useful for solving decision problems, especially problems that involve the allocation of sparse resources. Graduate study focuses on applied probability and statistics, decision analysis, optimization modeling, and optimization algorithms.

The *health systems* specialization seeks to train students to look at broad issues in health care, including long-term care, prevention, quality improvement, health care financing, and system evaluation. Understanding how people solve problems is a basic requirement for health systems engineers, who must apply scientific methods in a value-laden setting.

The specialization in *human factors and ergonomics* is concerned with the quality of work lives, ergonomics, and occupational safety and health for both workers and management. By examining, designing, testing, and evaluating the workplace and how people interact within it, human systems engineers can create productive, safe, and satisfying work environments.

The specialization in *manufacturing and production systems* is intended to provide the skills and knowledge necessary to compete successfully in a manufacturing environment. These skills include knowledge of the theory of manufacturing materials and processes and their control; knowledge of the essentials of manufacturing systems design and analysis; and knowledge of and hands-on experience with modern manufacturing technology.

The *quality engineering* specialization is designed to provide the necessary background for quality engineering careers in industry or government. Emphasis is on the foundations of quality improvement, job and organizational design, and process control.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Not allowed for graduate residence credit requirement but allowed for graduate degree credit requirement and graduate coursework (50%) requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Not allowed for graduate residence credit requirement but allowed up to 6 credits numbered 300 level or above toward the graduate degree credit requirement but not toward the 50% graduate coursework except for 700 level or above courses. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Allowed up to 15 credits numbered 300 or above toward graduate residence credit requirement and graduate degree credit requirement. If the courses were numbered 700 or above they may count toward the minimum graduate coursework (50%) requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

12 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Yes, consult with program for details.

## OVERALL GRADUATE GPA REQUIREMENT

3.0

## OTHER GRADE REQUIREMENTS

Grades of C and D received by a candidate in any graduate course will not be counted as credit toward the degree. These grades will be counted in the graduate GPA.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENTS AND EXAMINATIONS

Examinations: No

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Although an undergraduate industrial engineering degree is recommended, students from any discipline with a strong quantitative science emphasis are encouraged to apply. Applicants are strongly advised to review the prerequisites for each area of specialization at the department website (<https://www.engr.wisc.edu/academics/graduate-academics>).

Each application is judged on the basis of previous academic record, Graduate Record Exam (GRE) scores for the general test, three letters of recommendation, and the statement of purpose. Admission is very competitive and application deadlines are extremely important.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in industrial and systems engineering including areas such as decision science and operations research, quality engineering, manufacturing and health systems, and/or human factors.
- Identifies sources and assembles evidence pertaining to questions or challenges in industrial and systems engineering.
- Demonstrates understanding of the industrial and systems engineering field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate industrial and systems engineering methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in industrial and systems engineering.
- Communicates clearly in ways appropriate to industrial and systems engineering.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Bier (chair), Brennan, Carayon, Lee, Li, Linderoth, Radwin, Shi, Vanderheiden, Veeramani, Zhou; Associate Professors Alagoz, Krishnamurthy, Li, Luedtke, McLay, Wiegmann; Assistant Professors: Del Pia, Liu, Wang, Werner; Affiliate Professors Bowers, Burnside, Carnes, DeCroix, Ferris, Greenberg, Finster, Maravelias, Noyce, Pugh, Qian, Sesto, Shah, Smith, Steege, Thomadsen, Vanness, Wright

## INDUSTRIAL ENGINEERING, PH.D.

The Department of Industrial and Systems Engineering offers opportunities for graduate study leading to the master of science and the doctor of philosophy degrees in industrial engineering. Five areas of specialization are available, each designed to produce graduates capable of leading new and developing areas within industrial and systems engineering. The five areas, each with its own courses of study and admission procedures, are: decision science/operations research, health systems, human factors and ergonomics, manufacturing and production systems, and quality engineering. Since each area offers faculty, research, and courses that are unique, both with respect to each other and to much of industrial and systems engineering taught elsewhere, it is advisable to see Graduate Program (<https://www.engr.wisc.edu/academics/graduate-academics>) on the department website for further information.

The specialization in *decision science/operations research* trains students in analytical methodologies useful for solving decision problems, especially problems that involve the allocation of sparse resources. Graduate study focuses on applied probability and statistics, decision analysis, optimization modeling, and optimization algorithms.

The *health systems* specialization seeks to train students to look at broad issues in health care, including long-term care, prevention, quality improvement, health care financing, and system evaluation.



Understanding how people solve problems is a basic requirement for health systems engineers, who must apply scientific methods in a value-laden setting.

The specialization in *human factors and ergonomics* is concerned with the quality of work lives, ergonomics, and occupational safety and health for both workers and management. By examining, designing, testing, and evaluating the workplace and how people interact within it, human systems engineers can create productive, safe, and satisfying work environments.

The specialization in *manufacturing and production systems* is intended to provide the skills and knowledge necessary to compete successfully in a manufacturing environment. These skills include knowledge of the theory of manufacturing materials and processes and their control; knowledge of the essentials of manufacturing systems design and analysis; and knowledge of and hands-on experience with modern manufacturing technology.

The *quality engineering* specialization is designed to provide the necessary background for quality engineering careers in industry or government. Emphasis is on the foundations of quality improvement, job and organizational design, and process control.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Not allowed for graduate residence credit requirement but allowed for graduate degree credit requirement and graduate coursework (50%)

requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Not allowed for graduate residence credit requirement but allowed up to 6 credits numbered 300 level or above toward the graduate degree credit requirement but not toward the 50% graduate coursework except for 700 level or above courses. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Allowed up to 15 credits numbered 300 or above toward graduate residence credit requirement and graduate degree credit requirement. If the courses were numbered 700 or above they may count toward the minimum graduate coursework (50%) requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

12 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

No program-specific courses required.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral ISyE students are required to complete a minor.

In addition to requirement of minor, the Ph.D. program of ISyE has a requirement on breadth to make the Ph.D. student achieve minimum competence in multiple areas within industrial and systems engineering. It consists of taking at least two courses (6 credits) from a list of ISyE courses and attaining a grade of B or above in both courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.0

### OTHER GRADE REQUIREMENTS

Grades of C and D received by a candidate in any graduate course will not be counted as credit toward the degree. These grades will be counted in the graduate GPA.

### PROBATION POLICY

Students who are admitted with deficiencies but do not complete these courses within the first year are subject to probation.

### ADVISOR

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

In addition to the Graduate School policies, two faculty members must be from ISyE.

## ASSESSMENTS AND EXAMINATIONS

Examinations: qualifying exam, preliminary exam, and final oral defense.

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

The qualifying examination requirement must be satisfied by the end of the seventh semester of enrollment after earning the M.S. in Industrial Engineering or its equivalent from any institution.

The preliminary exam must be taken within five years after the time of passing the qualifying exam.

The Ph.D. defense must be completed within **five years** after passing the preliminary examination.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Although an undergraduate industrial engineering degree is recommended, students from any discipline with a strong quantitative science emphasis are encouraged to apply. Applicants are strongly advised to review the prerequisites for each area of specialization at the department website (<https://www.engr.wisc.edu/academics/graduate-academics>).

Each application is judged on the basis of previous academic record, Graduate Record Exam (GRE) scores for the general test, three letters of recommendation, and the statement of purpose. Admission is very competitive and application deadlines are extremely important.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within industrial and systems engineering.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the industrial and systems engineering.
- Creates research, scholarship, or performance that makes a substantive contribution to the industrial and systems engineering field.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of industrial and systems engineering to society.

- Communicates complex ideas in a clear and understandable manner to variety of audience.

## PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Bier (chair), Brennan, Carayon, Lee, Li, Linderoth, Radwin, Shi, Vanderheiden, Veeramani, Zhou; Associate Professors Alagoz, Krishnamurthy, Li, Luedtke, McLay, Wiegmann; Assistant Professors: Del Pia, Liu, Wang, Werner; Affiliate Professors Bowers, Burnside, Carnes, DeCroix, Ferris, Greenberg, Finster, Maravelias, Noyce, Pugh, Qian, Sesto, Shah, Smith, Steege, Thomadsen, Vanness, Wright

## PATIENT SAFETY, GRADUATE/ PROFESSIONAL CERTIFICATE

The graduate/professional certificate in patient safety is an interdisciplinary effort between the Department of Industrial and Systems Engineering, School of Nursing, School of Pharmacy, Department of Medical Physics, and Department of Population Health Sciences. Patient safety is of national and international importance and there is a shortage of people with expertise in the design of safe health care systems and technologies that can improve patient safety. Such expertise is important to physicians, nurses, pharmacists, and other health care professionals, and engineers. The certificate in patient safety provides students with knowledge and skills in an array of topics necessary for the identification, analysis, and control of patient safety programs.

## INFORMATION SCHOOL

**Administrative Unit:** Information School

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A., Ph.D.

**Minors and Certificates:** Doctoral Minor in Library and Information Studies; Doctoral Minor in Print Culture History; Specialist Certificate in Library and Information Studies

**Named Options:** Campus Delivered Program (M.A.); Distance Delivered Program (M.A.)

The Information School or “the iSchool at UW–Madison” is a professional school offering M.A. and Ph.D. degrees and an undergraduate digital studies certificate.

The Information School faculty are known for scholarly work in the areas of information policy and ethics, user behaviors and literacies, print culture, library and information technology history, electronic publishing, and the social aspects of information and communications systems. They have made valuable scholarly contributions in the areas of medical information retrieval systems, online search behavior and search effectiveness, publisher e-journal licensing practices, information technology history, print culture and library history, information ethics and policy, and youth and new media. Faculty are widely involved in different research areas on campus. For example, the iSchool hosts the Center for the History of Print and Digital Culture, a research center focused on authorship, reading, publication and distribution of print and digital materials. The Information School faculty members are involved with the Holtz Center for Science and Technology Studies, the Wisconsin Institute for Discovery, the Center for Financial Security, and the Games Learning & Society group.

The Information School is well known for its public-good, community engagement orientation. The Information School is home to several student organizations that shepherd long-term, information-justice projects including the Jail Library Group, the Tribal Library Archives and Museums Group, and the Allied Drive Literacy Project.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Library and Information Studies, Doctoral Minor (p. 411)
- Library and Information Studies, M.A. (p. 411)
- Library and Information Studies, Ph.D. (p. 413)
- Library and Information Studies, Specialist Certificate (p. 415)
- Print Culture History, Doctoral Minor (p. 416)

## PEOPLE

**Faculty:** Professors Eschenfelder (director), Downey, Kim, Whitmire; Associate Professors Smith; Assistant Professors Rubel, Senchyne, Willett

## LIBRARY AND INFORMATION STUDIES, DOCTORAL MINOR

### REQUIREMENTS

UW–Madison students seeking a doctoral minor in library and information studies work with a School of Information faculty member (serving as minor field advisor) to plan a 12-credit course of study that best meets the student’s educational goals. Students may take count Information School M.A.–level courses and Ph.D. seminars toward this minor.

### PEOPLE

**Faculty:** Professors Eschenfelder (director), Downey, Kim, Whitmire; Associate Professors Smith; Assistant Professors Rubel, Senchyne, Willett

## LIBRARY AND INFORMATION STUDIES, M.A.

The master’s degree in the Information School (iSchool) prepares graduates to develop and provide information services that create, collect, organize, store, analyze, find, distribute, and use information in a diverse, technological, and global society. At the master’s level, the school prepares information professionals to work in five broad overlapping areas of the information professions.

**Librarianship:** Graduates obtain employment in college and university librarianship, public librarianship, youth and young adult librarianship, electronic collections management, science and health librarianship, research data management, and school library media centers.

**Archives in a Digital Age** (on campus program only): Graduates obtain employment in digital asset management, digital preservation and curation, digital archives, corporate archives, government archives, special collections, and tribal libraries archives and museums.

**Information Management:** Graduates obtain employment in information analysis and visualization, knowledge management, prospect research, systems analysis, digital asset management, records management and compliance, research data management, information systems analysis and project management.

**Organization of Information:** Graduates obtain employment in metadata management, taxonomy and ontology development and implementation, digital asset management, cataloging, XML and linked data, and database management.

**User-Centered Systems Design and Evaluation:** Graduates obtain employment in user experience design, systems analysis and project management, IT training, educational technology support, digital asset management and curation, content management, and database development and management.

The master’s degree requires 39 credit hours. Students attending on a full-time basis generally complete the program in two academic years with summer work; part-time students complete it in three to four years.

Students gain hands-on experience as part of their degree through the school's required 3-credit field practicum. Students may choose practicum settings based on their career goals and combine real-life work with classroom sessions that provide support and encourage reflection and professional growth.

## M.A. PROGRAM SPECIALIZATIONS

Some M.A. program specializations require specific coursework or other requirements.

**Graduate/Professional Certificate in Strategic Innovation: Technology, Organizations, and Society:** The Information School offers a specialization in information innovation and organizational change in conjunction with the School of Business graduate/professional certificate (p. 497) which can be completed as part of the school's M.A. degree (on-campus program only).

**Certificate in Leadership:** iSchool students can earn the UW–Madison Certificate in Leadership ([https://cfli.wisc.edu/leadership\\_certificate.htm](https://cfli.wisc.edu/leadership_certificate.htm)) as part of their Information School M.A. degree (on campus and online programs).

**Double degrees:** The iSchool offers double degrees with the UW Law School, the School of Music, and the Department of Art History. These require separate admissions and additional coursework. (on campus program only)

**School Library Media Services and Administration:** A valid teaching license is required for school library media certification in the state of Wisconsin. The teaching license can be obtained before or after completing the School of Information MA; it is not required for admission. For licensed classroom teachers with master's degrees, web-based school library media certification courses are available through the UW System School Library Education Consortium (UWSSLEC).

Online students (distance degree option) should note: Specialized courses in art, music and law, as well as courses offered outside the Information School that may be part of specializations or double degrees, are generally not available online. For a distance student with academic background in one of these areas, combining the general LIS degree with the specialized background may be the best preparation.

The master's program is accredited by the American Library Association, recognized by the Wisconsin Division for Libraries, Technology, and Community Learning for certification of public librarians, and recognized by the state's Department of Public Instruction for licensing of school library media specialists.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., with available named options Campus Delivered Program, and Distance Delivered Program

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

39 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

33 credits after admission to the Information School

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

A minimum of 30 credits must be taken from graduate-level Information School M.A. coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

The remaining 9 credits of coursework must be 300 level or above and may not include iSchool undergraduate coursework.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students may count up to 6 credits of approved graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With approval, UW–Madison undergraduates accepted into the Information School program may count up to 7 graduate iSchool credits (450 and above) toward their M.A. degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

Students are allowed to count up to 9 approved credits of coursework numbered 450 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

M.A.–face-to-face option:

8 to 12 credits in a regular semester is considered full time at the graduate level by the Information School. Course load maximums are 12 credits in a regular semester, 8 credits in the summer term and 3 credits in the intersession.

M.A.–online option:

8 to 12 credits in a regular semester is considered full time at the graduate level. 6 credits is recommended for online students.

### PROGRAM-SPECIFIC COURSES REQUIRED

Required Courses:

Code	Title	Credits
L I S 601	Information: Perspectives and Contexts	3
L I S 602	Information: Organization and Search	3
L I S 603	Research and Assessment for Information Professionals	3

Also, 3 credits from a set of approved graduate level management courses and at least 3 credits from a set of approved graduate level technology courses. Students in school library media have additional required courses; for details, see the iSchool website.

## OVERALL GRADUATE GPA REQUIREMENT

3.0 GPA required

## OTHER GRADE REQUIREMENTS

Within the student's total program, one grade of BC or C is allowable in either a required or elective course if it is balanced by a grade of A or AB earned prior to or concurrently with the unsatisfactory grade. A second grade of BC or C or any grade of D or F will normally result in the student being dropped from the program.

## PROBATION POLICY

A student may be placed on probation or suspended from the Graduate School for low grades or for failing to resolve incompletes in a timely fashion. In special cases the Graduate School permits students who do not meet these minimum standards to continue on probation upon recommendation and support of their advisor.

## ADVISOR / COMMITTEE

All continuing students are required to meet with their advisor prior to registering for each semester. Failure to do so will result in a hold being placed on the student's registration.

## ASSESSMENTS AND EXAMINATIONS

Candidates must complete a minimum of a 120-hour practicum, and must complete a portfolio.

## TIME CONSTRAINTS

The maximum period for completion of the M.A. (under special circumstances) is seven calendar years. Contact the department for more information.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The school admits students to its on campus and online master's programs once a year, for fall semester. Applications are available in September and are due December 15. Note that the online program is called the "distance degree option" in all admissions forms, and students from any geographical location (including Madison, Wisconsin) are welcome to apply.

The Graduate School requires a bachelor's degree from a regionally accredited U.S. institution, or a comparable degree from an international institution. A minimum undergraduate grade-point average (GPA) of 3.00 (on a 4.00 scale) in the last 60 earned credit hours is required.

Application evaluation criteria include academic abilities, professional promise, leadership and community engagement. An undergraduate

program that includes breadth in liberal arts and sciences is required. Any major is acceptable. Prior work experience related to information professions is useful, but is not required. The GRE is not required.

International students: TOEFL or equivalent scores are required if English is not the native language, or if the undergraduate instruction was not in English. The Information School follows UW Graduate School rules regarding English proficiency exams. See the Graduate School website (<http://grad.wisc.edu>) for updated information. For more information about admission to the master's program, see MA Application (<http://www.slis.wisc.edu>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students apply key concepts with respect to the relationship between power, knowledge, and information.
- Students apply key concepts with respect to theories and practices of literacies, reading, and information use.
- Students organize and describe print and digital information resources.
- Students select and evaluate print and digital information resources.
- Students analyze information needs of diverse individuals and communities.
- Students understand and use appropriate information technologies.

### PROFESSIONAL CONDUCT

- Students evaluate and debate information policy and ethics issues applicable in local, national or global contexts.
- Students apply core ethical principles to professional practice.
- Students evaluate, problem solve and think critically, both individually and in teams.
- Students demonstrate good oral and written communication skills.
- Students participate in extracurricular activities in the field.
- Students demonstrate innovation and skills necessary for leadership.

## PEOPLE

**Faculty:** Professors Eschenfelder (director), Downey, Kim, Whitmire; Associate Professors Smith; Assistant Professors Rubel, Senchyne, Willett

## LIBRARY AND INFORMATION STUDIES, PH.D.

The doctoral degree is a research degree designed to prepare academics to research and teach in information schools. The program emphasizes scholarly writing, interdisciplinary and boundary-spanning inquiry, employment of theory to frame and guide inquiry and analysis, expertise with cutting edge scholarship techniques (including those using new technologies), and preparation in undergraduate and graduate teaching. For more information, see the Ph.D. program description and the Ph.D. program planning guide on the Information School website.

The Information School or “the iSchool at UW–Madison” is a professional school offering M.A. and Ph.D. degrees and an undergraduate digital studies certificate.

School faculty are known for scholarly work in the areas of information policy and ethics, user behaviors and literacies, print culture, library and information technology history, electronic publishing, and the social aspects of information and communications systems. They have made valuable scholarly contributions in the areas of medical information retrieval systems, online search behavior and search effectiveness, publisher e-journal licensing practices, information technology history, print culture and library history, information ethics and policy, and youth and new media. Faculty are widely involved in different research areas on campus. For example, the iSchool hosts the Center for the History of Print and Digital Culture, a research center focused on authorship, reading, publication and distribution of print and digital materials. Faculty members are involved with the Holtz Center for Science and Technology Studies, the Wisconsin Institute for Discovery, the Center for Financial Security, and the Games Learning & Society group.

The iSchool is well known for its public-good, community engagement orientation. The school is home to several student organizations that shepherd long-term, information-justice projects including the Jail Library Group, the Tribal Library Archives and Museums Group, and the Allied Drive Literacy Project.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits including dissertator credits, 990s and 999s

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits after admission to the Information School

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

The majority of a Ph.D. student’s coursework must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>). Courses at the 300–600 level should be taken sparingly and must be approved by the student’s advisor.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students may count up to 9 credits of approved graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits counted toward a UW–Madison undergraduate degree are allowed to count toward the PhD degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

Students are allowed to count up to 9 approved credits of coursework numbered 450 or above taken as a UW–Madison Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON I-SCHOOL M.A.

M.A. graduates who are accepted into the Information School Ph.D. program may count up to 10 qualified credits from their iSchool M.A. degree toward their Ph.D. Qualified courses include iSchool Ph.D. seminars (900 level) and research methods courses (e.g. L I S 603 Research and Assessment for Information Professionals).

### CREDITS PER TERM ALLOWED

8 to 12 credits in a regular semester is considered full time at the graduate level. Course load maximums are 12 credits in a regular semester, 8 credits in the summer term and 3 credits in the intersession.

### PROGRAM-SPECIFIC COURSES REQUIRED

A general research methods course is required of all students. This must be a graduate-level course, and if not taken at the iSchool (L I S 603 Research and Assessment for Information Professionals) the student must present a transcript and, if possible, a syllabus to the course. In addition, students must take Ph.D. research seminar L I S 910 Smr-Research Design & Methodology for Library & Information Studies and are required to take a minimum of two semesters of statistics and one semester of qualitative research. Each student must take at least one course in each of three (out of four) designated areas to develop a breadth of knowledge about the field.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.5 GPA required

### OTHER GRADE REQUIREMENTS

To remain in good academic standing within the iSchool Ph.D. program, a student must maintain a 3.5 overall GPA, not carry any incomplete grades in courses (other than 999s) for more than 1 semester, and pass all mastery demonstration paper deadlines by appointed deadlines.

### PROBATION POLICY

Students who fail to meet any of the above criteria will receive a letter of warning from the Ph.D. program director placing them on probationary status. They will have one additional semester (not including summer) to change their status. If they do not successfully change their status,

they will be asked to leave the program. If students do not expect to successfully change their status within the probationary semester, they can request that the Ph.D. committee grant a probation extension; however, an extension will be granted only if the student can prove likelihood of success in the upcoming semester. The student should send a letter asking for an extension and providing evidence of likelihood of success to the Ph.D. program director.

## ADVISOR / COMMITTEE

The Information School Ph.D. Committee serves as the Progress Evaluation Committee for doctoral students. Upon admission, the Ph.D. committee chair serves as the default advisor for all students. At any point, the student may switch to a major professor/advisor based on similarities in research interests. The student's doctoral committee shall be five members of the graduate faculty; no fewer than three are to be from the iSchool faculty and at least one shall be from outside the school.

## ASSESSMENTS AND EXAMINATIONS

Each student is required to fulfill at least one teaching practicum and at least two different research practica. Students will demonstrate mastery of the required subject areas and research skills through three mastery demonstration papers and a program portfolio. Presentation and successful defense of a program portfolio and statement of intent constitutes the preliminary examination. Successful defense of the program portfolio and statement of intent constitutes formal acceptance into candidacy for the Ph.D. degree.

## TIME CONSTRAINTS

Completion of the degree should be within a three- to four-year period beyond earning the master's degree.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing their program portfolio and statement of intent may be required to take additional coursework, redefend their program portfolio and statement of intent, and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No; however, coursework in a foreign language may be required if necessary for completing research activities.

## ADMISSIONS

Ph.D. admissions at the Information School require GRE scores, a GPA of 3.0 (on a 4.0 scale) or better in the last 60 hours of academic credit earned; a master's degree in an appropriate field; a detailed written statement of the area of research interest, fit with current faculty and the purpose for pursuing doctoral study; and an interview with the school's Ph.D. committee or other faculty members serving on the committee's behalf. International students must meet the Graduate School's language and degree requirements.

Applicants whose GPA falls below the required level must provide other evidence of academic ability. (Advice on the type of evidence

appropriate to the applicant should be requested from the administrator of the doctoral program.) Applicant qualifications for admission will be reviewed by the school's Ph.D. committee, which will make an admissions recommendation to the director who, in turn, makes a recommendation to the Graduate School. The criteria used in this review include academic promise, the probability that the school's doctoral program will meet the goals and research interests of the applicant, and that the applicant will be able to complete the program successfully. Under certain circumstances, admission may be approved on a probationary basis or with deficiencies. Students will not normally be permitted to continue longer than the first year on probation. For more information see the Ph.D. program admissions page.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will be able to employ specific methodologies appropriate to areas of study.
- Students will be able to demonstrate basic capacities to employ new digital data collection and analysis methodologies.
- Students will be able to demonstrate knowledge of a range of theories in research areas as well as core LIS theories.
- Students will be able to add to existing bodies of theory, scholarship or scientific knowledge through critique, testing or extension in scholarly output.
- Students will be able to demonstrate scholarly excellence.
- Students will be able to demonstrate skills and experience in teaching.

### PROFESSIONAL CONDUCT

- Students will be able to demonstrate mastery of scholarly writing genre.
- Students will be able to demonstrate strong oral communication skills.
- Students will be able to demonstrate involvement in the LIS academic community.

## PEOPLE

**Faculty:** Professors Eschenfelder (director), Downey, Kim, Whitmire; Associate Professors Smith; Assistant Professors Rubel, Senchyne, Willett

## LIBRARY AND INFORMATION STUDIES, SPECIALIST CERTIFICATE

### REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

## SPECIALIST CERTIFICATE

Specialist Certificate

## MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

42 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

24 graduate credits after admission to the Information School

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (21 out of 42 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

All coursework must be above 300 level and may not include iSchool undergraduate coursework.

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students may count up to 10 credits of approved graduate coursework from other institutions.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree may count toward the specialist certificate.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No courses taken as UW–Madison Special student may count toward the specialist certificate.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON INFORMATION SCHOOL M.A.

Students may count up to 10 credits of graduate coursework from an iSchool M.A. degree.

## CREDITS PER TERM ALLOWED

8 to 12 credits in a regular semester is considered full time at the graduate level.

## PROGRAM-SPECIFIC COURSES REQUIRED

Up to half of the credits should be from academic units related to the student's specialization (including but not limited to the iSchool). All coursework must be 300 level or above and may not include iSchool undergraduate courses (e.g., 301, 351). 999s and 990s are appropriate.

See program website for details.

## OVERALL GRADUATE GPA REQUIREMENT

At least a 3.0 GPA required; see program website for more details.

## OTHER GRADE REQUIREMENTS

3.0 GPA required.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

See program webpage for any program-specific additional probation policies.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

See program webpage for any program-specific additional details.

## ASSESSMENTS AND EXAMINATIONS

The candidate is required to prepare and publicly defend a major project/paper in addition to completing credit hour requirements.

## TIME CONSTRAINTS

Students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

See program website for any program-specific time constraints.

## LANGUAGE REQUIREMENTS

No language requirements unless assigned by program.

## PEOPLE

**Faculty:** Professors Eschenfelder (director), Downey, Kim, Whitmire; Associate Professors Smith; Assistant Professors Rubel, Senchyne, Willett

## PRINT CULTURE HISTORY, DOCTORAL MINOR

## REQUIREMENTS

Students are required to take a minimum of 12 credits in courses whose subjects may range from the history of mass communications, cartography, literature, education, consumer movements, and library and information studies, to subjects dealing with gender, race, age, social class, and sexual orientation issues. At least 3 credits must be from



seminar studies at the 900 level. To determine if a course is eligible, contact the print culture doctoral minor director.

## PEOPLE

**Faculty:** Professors Eschenfelder (director), Downey, Kim, Whitmire; Associate Professors Smith; Assistant Professors Rubel, Senchyne, Willett

# INSTITUTE FOR CLINICAL AND TRANSLATIONAL RESEARCH

**Administrative Unit:** Institute for Clinical and Translational Research

**College/School:** School of Medicine and Public Health

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S. in Clinical Investigation; Ph.D. in Clinical Investigation

**Minors and Certificates:** Doctoral Minor in Clinical Investigation; Graduate/Professional Certificate in Clinical and Community Outcomes; Graduate/Professional Certificate in Fundamentals of Clinical Research

The Institute for Clinical and Translational Research (ICTR) is the administrative home of the M.S. and Ph.D. in clinical investigation, and the certificates in clinical and community outcomes research, and fundamentals of clinical research.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Clinical Investigation, Doctoral Minor (p. 418)
- Clinical Investigation, M.S. (p. 419)
- Clinical Investigation, Ph.D. (p. 420)
- Clinical and Community Outcomes, Graduate/Professional Certificate (p. 422)
- Fundamentals of Clinical Research, Graduate/Professional Certificate (p. 423)

## CLINICAL INVESTIGATION, DOCTORAL MINOR

Doctoral or professional program students in engineering, nursing, veterinary medicine, and other disciplines may want to minor in clinical investigation as a way to learn about applications of science to clinical disciplines. A doctoral minor in clinical investigation provides students with a focus on interdisciplinary clinical and translational research while they pursue a related scientific area of graduate study.

## REQUIREMENTS

**Minor curriculum.** The doctoral minor in clinical investigation requires 10 credits. The list of requirements follows.

**Doctoral minor students should be aware of two policies:**

1. Students with permission to take the 1-credit required biostats course, who then take ethics and electives courses for the low end of possible credits might have to take another elective course, because 10 credits minimum are required for the minor.
2. No course that counts for the major can also count for the minor. Frequently this means that students must take two ethics courses—one for the major and one for the minor.

## Courses

- **B M I/STAT 541 Introduction to Biostatistics** (3 credits) or **B M I 699 Independent Study** (1 credit). Both courses require instructor consent. The 1-credit B M I 699 Independent Study is for students who have prior statistics (not biostatistics) coursework.
- **B M I/STAT 542 Introduction to Clinical Trials I** (3 credits, spring). Course emphasis is on clinical trials study design. B M I/STAT 541 Introduction to Biostatistics (or equivalent) is a prerequisite.
- **One lecture course in responsible (ethical) conduct of research** (1–2 credits) selected from the following list or an equivalent course approved by the executive committee:
  - **MED HIST 545 Ethical and Regulatory Issues in Clinical Investigation** (1 credit, summer)
  - **PHARMACY 800 Research Ethics: Scientific Integrity and the Responsible Conduct of Research** (2 credits, alternate falls, 2018, 2020, etc.)
  - **SURG SCI 812 Research Ethics and Career Development** (2 credits, fall)
  - **OBS&GYN 955 Responsible Conduct of Research for Biomedical Graduate Students** (2 credits, fall)
  - **NURSING 802 Ethics and the Responsible Conduct of Research** (1 credit, spring)
  - **ONCOLOGY 675 Advanced or Special Topics in Cancer Research** (listed as Advanced or Special Topics, 1 credit, spring)
- **Elective courses** to reach at least 10 credits total from the GPCI curriculum, selected from the following list of options:
  - **NURSING/MEDICINE/POP HLTH 705 Seminar in Interdisciplinary Clinical Research Evidence** (2 credits, summer)
  - **FAM MED 701 Perspectives in Multidisciplinary Clinical & Translational Research** (2 credits, fall). An overview of clinical investigation and translational research.
  - **POP HLTH/SOC 797 Introduction to Epidemiology** (3 credits, fall)
  - **B M I 544 Introduction to Clinical Trials II** (3 credits, fall). Course emphasis is on clinical trial implementation and management, regulatory requirements, and data collection and management strategies. B M I/STAT 541 Introduction to Biostatistics (or equivalent), B M I/STAT 542 Introduction to Clinical Trials I, and instructor consent are prerequisites.

**Procedure to declare the minor in clinical investigation.** After discussion with the major faculty advisor, the student completes and submits the Intent to Complete a Ph.D. Minor in Clinical Investigation form. The form specifies the proposed courses proposed to meet the minor requirements, the timetable for taking the courses, and a signature by the student's advisor. Clinical Investigation is an External (Option A) minor.

## ADMISSIONS

Admissions: Sally Wedde, Graduate Program in Clinical Investigation (rec-education@hslc.wisc.edu)

## PEOPLE

**Faculty:** Professors Eide (chair), Eisenstein, Smith; Associate Professor Yen

## CLINICAL INVESTIGATION, M.S.

Clinical investigation is a field in which teams of health care professionals, biostatisticians, and others imagine, design, and conduct clinical research, and then take discoveries to human or animal patient populations in the health care system or in communities.

The graduate program in clinical investigation (GPCI) offers a 30-credit M.S. degree, 51-credit Ph.D. degree and a 10-credit minor in clinical investigation for doctoral students in other programs. GPCI is housed in the UW Institute for Clinical and Translational Research (ICTR) and is designed in response to a need for clinical research training programs. The ICTR Clinical and Translational Science Award (CTSA) facilitates the UW–Madison's ability to offer a spectrum of graduate programs in clinical research.

This applied, clinical and translational graduate program complements the areas of clinical research training by the population health graduate program. The focus of GPCI is to provide physicians, clinical scientists, and other health care professionals with the knowledge and skills needed to conduct and translate basic science discoveries into clinical applications through patient (human or animal)–oriented research. The graduate program trains students to help move research toward solutions for patient populations more quickly.

Representatives from the Schools of Medicine and Public Health, Nursing, Pharmacy and Veterinary Medicine, and the College of Engineering met as a task force in 2006 to design the program. All ICTR academic partners are represented in the curriculum. They are joined by partner Marshfield Clinic as members of the faculty executive committee that guides the program.

The curriculum draws from existing courses in the partner schools, and includes new courses developed exclusively for the GPCI. Coursework provides a solid foundation in research methods and analysis, including biostatistics, study design, and ethical conduct. Through electives and a research requirement, students pursue their own areas of specialization in patient-oriented clinical research.

The knowledge and skills acquired while earning a degree in clinical investigation can be applied to jobs in academic institutions; private industry, including pharmaceutical companies, insurers and managed care organizations; government agencies; non-profit organizations; and a range of local to international organizations.

Applicants ideally will have a health professional degree (M.D., DVM, Pharm.D., Ph.D., BSN, BSE, MPT, DPT). Clinical Investigation students are unique among UW–Madison graduate students because they enter the program with a terminal degree (with exceptions) and they are seeking training to directly apply their work with patients.

Full-time and part-time enrollment is available. Most core courses meet at 4 p.m. or later, to accommodate the schedules of working health professionals.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

34 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, an M.S. student's graduate coursework from other institutions no longer than five years ago may count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, M.S. and Ph.D. students may be allowed to count graduate-level courses that they took as a Special student. Because the program provides flexibility to clinical professionals who frequently begin their graduate careers part time as Special students, the program may allow up to 15 such credits for M.S. and Ph.D. students. Courses taken as a Special student numbered under the 700 level do not count toward the 50% graduate coursework requirement.

### CREDITS PER TERM ALLOWED

12 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

All M.S. students are required to complete 6 elective credits.

Contact program for list of specific courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all core curriculum coursework.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

M.S. students select their faculty advising (degree) committees by the end of the first semester in the program. Students and the advisors who sign the form are asked to meet annually or more.

## ASSESSMENTS AND EXAMINATIONS

Defense of M.S. thesis required. The thesis is submitted in writing to the degree committee two weeks prior to the defense date; the thesis is defended verbally during the defense meeting.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The program accepts applications each February 1 for the M.S. and Ph.D. for the fall term only. Exceptions for spring admission are made rarely and only if the applicant has taken fall prerequisite courses.

The faculty executive committee for the program considers all aspects of each application. The applicant must meet the minimum requirements of the Graduate School plus those of the program, listed here:

- Have a focused area of interest in patient-oriented clinical research and a passion for continuing in a career in patient-oriented research
- Ideally have a health professional degree (M.D., DVM, Pharm.D., Ph.D., BSN, BSE, MPT, DPT).
- Have GRE scores if the applicant does not have a graduate or medical professional degree from a U.S. institution
- Identify a primary advisor to mentor and support the applicant throughout graduate study.

Acceptance into the program will depend in part on identification of a research program that aligns with a student's research interests and career goals, a student's fit with the program and likelihood of successfully completing a graduate degree. Acceptance into the program does not assure funding. Identification of a faculty advisor and research

area of study is a key consideration in the admissions process but does not guarantee admission.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

**As an active scholarly participant in a multidisciplinary research team, conduct research projects that:**

- Lead to translation of research among the laboratory, clinic and population through technological or systems innovations, including but not limited to drug therapies, medical devices, biological materials, clinical processes, and/or behavioral interventions.
- Are appropriately patient-oriented.
- Draw on the expertise of collaborators in multiple disciplines.
- Integrate clinical and translational science across multiple departments, schools and colleges, clinical and research institutes, and healthcare delivery organizations.
- Determine when it is appropriate to use a patient-oriented research design to investigate a translational clinical problem.
- Understand the principles of multidisciplinary patient-oriented clinical research protocols.
- Analyze, interpret and report research findings of clinical studies through peer-reviewed scientific channels and to a lay audience.

### PROFESSIONAL CONDUCT

- Apply and foster professional, ethical and responsible conduct of clinical research.

## PEOPLE

**Faculty:** Adams, Asthana, Barrett, Benca, Carnes, Chappell, Coen, Connor, DeMets, Dempsey, Doepfer, Drezner, Emborg, Fowler, Gangnon, Gern, Gumperz, Heiderscheit, Ikonomidou, Iskandar, Jackson, Jarjour, Kahl, Keely, Kennedy, Kent, Kim, Li, Liu, Mathur, Mendonca, O'Connor, Page, Pearce, Pyle, Rabago, Raval, Reeder, Safdar, Sheibani, Smith, Sondel, Sorkness, Suresh, Thibeault, Wald

## CLINICAL INVESTIGATION, PH.D.

Clinical investigation is a field in which teams of health care professionals, biostatisticians, and others imagine, design, and conduct clinical research, and then take discoveries to human or animal patient populations in the health care system or in communities.

The graduate program in clinical investigation (GPCI) offers a 30-credit M.S. degree, 51-credit Ph.D. degree and a 10-credit minor in clinical investigation for doctoral students in other programs. GPCI is housed in the UW Institute for Clinical and Translational Research (ICTR) and is designed in response to a need for clinical research training programs. The ICTR Clinical and Translational Science Award (CTSA) facilitates the UW–Madison's ability to offer a spectrum of graduate programs in clinical research.

This applied, clinical and translational graduate program complements the areas of clinical research training by the population health graduate program. The focus of GPCI is to provide physicians, clinical scientists, and other health care professionals with the knowledge and skills

needed to conduct and translate basic science discoveries into clinical applications through patient (human or animal)-oriented research. The graduate program trains students to help move research toward solutions for patient populations more quickly.

Representatives from the Schools of Medicine and Public Health, Nursing, Pharmacy and Veterinary Medicine, and the College of Engineering met as a task force in 2006 to design the program. All ICTR academic partners are represented in the curriculum. They are joined by partner Marshfield Clinic as members of the faculty executive committee that guides the program.

The curriculum draws from existing courses in the partner schools, and includes new courses developed exclusively for the GPCI. Coursework provides a solid foundation in research methods and analysis, including biostatistics, study design, and ethical conduct. Through electives and a research requirement, students pursue their own areas of specialization in patient-oriented clinical research.

The knowledge and skills acquired while earning a degree in clinical investigation can be applied to jobs in academic institutions; private industry, including pharmaceutical companies, insurers and managed care organizations; government agencies; non-profit organizations; and a range of local to international organizations.

Applicants ideally will have a health professional degree (M.D., DVM, Pharm.D., Ph.D., BSN, BSE, MPT, DPT). Clinical Investigation students are unique among UW-Madison graduate students because they enter the program with a terminal degree (with exceptions) and they are seeking training to directly apply their work with patients.

Full-time and part-time enrollment is available. Most core courses meet at 4 p.m. or later, to accommodate the schedules of working health professionals.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

60 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, a Ph.D. student's graduate coursework from other institutions no longer than ten years ago may count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, M.S. and Ph.D. students may be allowed to count graduate level courses that they took as a Special student. Because the program provides flexibility to clinical professionals who frequently begin their graduate careers part time as Special students, the program may allow up to 15 such credits for M.S. and Ph.D. students. Courses taken as a Special Student numbered under the 700 level do not count toward the 50% graduate coursework requirement.

### CREDITS PER TERM ALLOWED

12 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact program for list of specific courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Breadth in the clinical investigation doctoral program is achieved as described in the graduate program handbook, located here (<https://ictr.wisc.edu/documents/overview-brochure-for-graduate-program-in-clinical-investigation>).

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

Students must earn a B or above in all core curriculum coursework.

### PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

### ADVISOR / COMMITTEE

Ph.D. students select their faculty advising (degree) committees by the end of the first semester in the program. Students and the advisors who sign the form are asked to meet annually or more; dissertators twice a year or more.

## ASSESSMENTS AND EXAMINATIONS

Oral preliminary exam required.

Defense of Ph.D. dissertation required. The thesis is submitted in writing to the degree committee two weeks prior to the defense date; the thesis is defended verbally during the defense meeting.

## TIME CONSTRAINTS

Doctoral students are expected to pass the final oral examination and deposit the dissertation no later than five years from the date of passing the preliminary examination. The oral examination is the oral defense of the completed dissertation. Full-time students generally complete the dissertation within two years of the preliminary examination. Part-time students may take longer.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The program accepts applications each February 1 for the M.S. and Ph.D. for the fall term only. Exceptions for spring admission are made rarely and only if the applicant has taken fall prerequisite courses.

The faculty executive committee for the program considers all aspects of each application. The applicant must meet the minimum requirements of the Graduate School plus those of the program, listed here:

- Have a focused area of interest in patient-oriented clinical research and a passion for continuing in a career in patient-oriented research
- Ideally have a health professional degree (M.D., DVM, Pharm.D., Ph.D., BSN, BSE, MPT, DPT).
- Have GRE scores if the applicant does not have a graduate or medical professional degree from a U.S. institution
- Identify a primary advisor to mentor and support the applicant throughout graduate study.

Acceptance into the program will depend in part on identification of a research program that aligns with a student's research interests and career goals, a student's fit with the program and likelihood of successfully completing a graduate degree. Acceptance into the program does not assure funding. Identification of a faculty advisor and research area of study is a key consideration in the admissions process but does not guarantee admission.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

**Design, execute and lead research projects that:**

- Lead to translation of research among the laboratory, clinic and population through technological or systems innovations, including but not limited to drug therapies, medical devices, biological materials, clinical processes, and/or behavioral interventions.

- Are appropriately patient-oriented.
- Draw on the expertise of collaborators in multiple disciplines.
- Integrate clinical and translational science across multiple departments, schools and colleges, clinical and research institutes, and healthcare delivery organizations.
- Determine when it is appropriate to use a patient-oriented research design to investigate a translational clinical problem.
- Analyze, interpret and report research findings of clinical studies through peer-reviewed scientific channels and to a lay audience.
- Disseminate knowledge through teaching and mentoring students/trainees.

## PROFESSIONAL CONDUCT

- Apply and foster professional, ethical and responsible conduct of clinical research.

## PEOPLE

**Faculty:** Adams, Asthana, Barrett, Benca, Carnes, Chappell, Coen, Connor, DeMets, Dempsey, Doepfer, Drezner, Emborg, Fowler, Gangnon, Gern, Gumperz, Heiderscheit, Ikonomidou, Iskandar, Jackson, Jarjour, Kahl, Keely, Kennedy, Kent, Kim, Li, Liu, Mathur, Mendonca, O'Connor, Page, Pearce, Pyle, Rabago, Raval, Reeder, Safdar, Sheibani, Smith, Sondel, Sorkness, Suresh, Thibeault, Wald

## CLINICAL AND COMMUNITY OUTCOMES, GRADUATE/ PROFESSIONAL CERTIFICATE

### REQUIREMENTS

The certificate in clinical and community outcomes research curriculum consists of five courses and one project for a total of 14 to 15 credit hours. Depending on course load, students may be able to complete course requirements within two years.

Code	Title	Credits
<b>Course Requirements</b>		
POP HLTH 709	Translational and Outcomes Research in Health and Health Care	3
<i>Electives</i>		
Select one course from each of the following areas: <sup>1</sup>		8-9
	Working with Communities	
	Quantitative Methods Relevant to Clinical and Community Outcomes Research	
	Qualitative Methods Relevant to Clinic and Community Outcomes Research	
<i>Project</i>		
Complete 2 credits <sup>2</sup>		2
<i>Seminar</i>		
Select one of the following:		1
POP HLTH 990	Research <sup>3</sup>	

I SY E 961 Graduate Seminar in Industrial Engineering<sup>4</sup>

Total Credits

14-15

<sup>1</sup> The certificate advisor can help students choose courses that qualify as fulfilling these requirements. At least one of the courses must be from outside the student's major. For important details and a list of suggested courses, see "Electives: Certificate in Clinical and Community Outcomes Research," under "Curriculum" on the program website (<https://ictr.wisc.edu/T2TRCertificate>).

<sup>2</sup> See "Project" under "Curriculum" on the program website (<https://ictr.wisc.edu/T2TRCertificate>).

<sup>3</sup> POP HLTH 990 Research is offered through the Health Innovations Program (HIP). AQORN is an informal lunchtime seminar that is open to University of Wisconsin faculty, staff, and students interested in health services research. AQORN meets for 90 minutes, sometimes as frequently as twice a month. At each meeting, someone who has a research project in progress presents information about their project. Then the group discusses and exchanges information and ideas relevant to the project. See the program website (<https://ictr.wisc.edu/T2TRCertificate>) for course-credit requirements and enrollment procedures.

<sup>4</sup> I SY E 961 Graduate Seminar in Industrial Engineering is offered through the Department of Industrial and Systems Engineering. Since I SY E 961 is not offered on a regular basis, the alternative is for a student to sign up for a one-credit independent study with Professor Pascale Carayon ([carayon@engr.wisc.edu](mailto:carayon@engr.wisc.edu)) ([Carayon@ie.engr.wisc.edu](mailto:Carayon@ie.engr.wisc.edu)). The student will be required to watch all of the patient safety seminars (SEIPS—Systems Engineering Initiative for Patient Safety) that have been videotaped over the years. The student will write two one-page summaries of two seminars that are due on the last day of class. The SEIPS seminars are available on the Video Library website (<https://videos.med.wisc.edu>) > Series > Community Academic Partnership (CAP) Patient Safety.

1. Print and complete the certificate application form (available on the program website (<https://ictr.wisc.edu/T2TRCertificate>)).
2. Send the completed application to Sharon Schumacher, 5137 Cooper Hall, University of Wisconsin, Madison, WI 53705; [scschumache2@wisc.edu](mailto:scschumache2@wisc.edu).
3. Applications are reviewed on a rolling basis by the certificate advisory committee.
4. Notification of admission to the certificate program: If the student has completed the application procedures described above, notification of the admission decision will be received within three weeks. Students with questions about the status of the application should contact Sharon Schumacher at [scschumache2@wisc.edu](mailto:scschumache2@wisc.edu).
5. After the student is admitted, the certificate advisory committee will review the stated research interests and recommend an advisor. An objective is to match students with an advisor from a discipline other than their own, to expose students to a variety of perspectives. Students will be notified with the name and contact information of their advisor. They should schedule a meeting with the certificate advisor within the first month of the certificate program to identify learning and career objectives, and to discuss the program in relation to student goals.
6. **Note to Ph.D. students:** Ph.D. students may want to start the graduate/professional certificate program early enough to be finished before starting the dissertation because university policy states: "If a dissertator wants to pursue a graduate degree or certificate in another area, the dissertator fee status will be discontinued and regular graduate fees will be assessed, with possible consequences listed above." See the Graduate School's policy on Dissertator Status (<https://grad.wisc.edu/acadpolicy/#dissertationstatus>).

## FUNDAMENTALS OF CLINICAL RESEARCH, GRADUATE/ PROFESSIONAL CERTIFICATE

**Administrative Unit:** Institute for Clinical and Translational Research

**College/School:** School of Medicine and Public Health

**Minors and Certificates:** Graduate/Professional Certificate

To conduct patient-oriented clinical studies adequately, it is necessary to understand the principles of research design and statistical analysis. With increasing complexities in clinical research, it is imperative that clinical researchers receive a minimum training in clinical research methods. The objective of the certificate in the fundamentals of clinical research is to provide formalized training in clinical research methodology and a practicum in research design and statistical analysis in patient-oriented clinical research. Areas of study include: biostatistics, epidemiology, research ethics and the responsible conduct of research, and clinical trials design and implementation.

## REQUIREMENTS

The certificate in fundamentals of clinical research consists of six required courses for a total of 16 semester credits.

Code	Title	Credits
<b>Required Courses</b>		
BM I/STAT 541	Introduction to Biostatistics	3

## ADMISSIONS

### APPLICATION GUIDELINES

The Institute for Clinical and Translational Research (ICTR) is the administrative home of the certificate in clinical and community outcomes research. Detailed information about the curriculum, admission requirements, application procedures, and student services coordinators is posted on the ICTR website (<http://www.ictr.wisc.edu>).

Whether a student enrolls in the graduate/professional certificate or capstone certificate program will depend on their educational goals. (Course requirements are the same for all.)

### GRADUATE/PROFESSIONAL CERTIFICATE PREREQUISITES AND APPLICATION AND ENROLLMENT PROCEDURES

Graduate and professional students from any discipline are eligible to apply for enrollment in the graduate/professional certificate program. To be considered for admission, complete the following application procedures.

B M I/STAT 541	Introduction to Biostatistics	3
B M I 544	Introduction to Clinical Trials II	3
B M I/STAT 546	Practicum in Clinical Trial Data Analysis and Interpretation	3
Select one lecture course in ethical conduct of research from the following:		1-2
SURG SCI 812	Research Ethics and Career Development	
MED HIST 545	Ethical and Regulatory Issues in Clinical Investigation	
NURSING 802	Ethics and the Responsible Conduct of Research	
ONCOLOGY 675	Advanced or Special Topics in Cancer Research	
POP HLTH/SOC 797	Introduction to Epidemiology	3
Total Credits		16-17

## ADMISSIONS

Applications to the certificate program are considered on a rolling basis.



# INSTITUTE FOR REGIONAL AND INTERNATIONAL STUDIES

**Administrative Unit:** Institute for Regional and International Studies

**College/School:** College of Letters & Science

**Admitting Plans:** M.A.

**Degrees Offered:** M.A. in Latin American, Caribbean, and Iberian Studies; M.A. in Russian, East European and Central Asian Studies; M.A. in Southeast Asian Studies

**Minors and Certificates:** Doctoral Minor in African Studies; Doctoral Minor in East Asian Studies; Doctoral Minor in Global Studies; Doctoral Minor in Latin American, Caribbean, and Iberian Studies; Doctoral Minor in Russian; Doctoral Minor in Russian, East European and Central Asian Studies; Doctoral Minor in Southeast Asian Studies; Graduate/Professional Certificate in African Studies; Graduate/Professional Certificate in European Studies; Graduate/Professional Certificate in Russian, East European and Central Asian Studies; Graduate/Professional Certificate in Southeast Asian Studies

## AFRICAN STUDIES

The African Studies Program facilitates interdisciplinary teaching and research among scholars who focus on Africa. The program is recognized nationally for its excellence in academic offerings. More than 80 faculty are members of the program and offer courses in 35 departments.

## EAST ASIAN STUDIES

The Center for East Asian Studies acts as a clearinghouse and coordinating center bringing together an interdisciplinary group of faculty, staff, and students interested in the study of China, Japan, Korea, and Tibet. The center promotes and supports study of the region through academic programs, conferences, public lectures, and fellowships. Although the center does not presently offer a graduate degree, it does offer a doctoral minor and also supports students in other graduate programs who wish to focus on the East Asian region. More than 40 core and affiliate faculty members offer courses related to East Asia in the humanities, social sciences, and other fields through approximately 20 departments in six schools and colleges. Graduate students pursuing study of Chinese, Japanese, Korean, Tibetan, or certain other Chinese minority languages may apply for Foreign Language and Area Studies (FLAS) Fellowships and other awards administered by the center. The East Asian Collection of Memorial Library houses a large collection of vernacular and English-language materials on East Asia.

## EUROPEAN STUDIES

The European studies program, in cooperation with the Jean Monnet Centre of Excellence (JMCE), and the DAAD Center for German and European Studies (CGES) promotes knowledge and understanding of Europe both on and off campus. Established in 1968, the graduate/professional certificate program provides integrated interdisciplinary studies on contemporary Europe for graduate students. The program brings together scholars on campus interested in different aspects of Europe to discuss topics of mutual interest. More than twenty UW-Madison departments offer courses on Europe (apart from language

courses), providing the largest number of courses on any region of the world other than the United States.

## GLOBAL STUDIES

The global studies minor is both interdepartmental and interdisciplinary. Global Studies and the Center for World Affairs (WAGE) jointly support the minor, which draws on faculty expertise and courses from more than 30 departments and programs across all colleges. The vast majority of listed courses are housed in Letters & Science departments.

## LATIN AMERICAN, CARIBBEAN, AND IBERIAN STUDIES

The Latin American, Caribbean, and Iberian Studies (LACIS) Program offers three graduate programs: master of arts, a doctoral minor, and a dual degree in law and Latin American, Caribbean, and Iberian studies.

The mission of the graduate program is to provide an interdisciplinary foundation for the study of Latin America, the Caribbean, Spain, and Portugal. The University of Wisconsin-Madison is nationally recognized for excellence in research and teaching on these regions. The LACIS program includes a core faculty of more than 50 members and course offerings in 40 disciplines and professional schools, including agricultural and applied economics, anthropology, business, community and environmental sociology, comparative literature, environmental studies, gender and women's studies, geography, history, law, music, political science, population health, Quechua, Yucatec Maya, sociology, and Spanish and Portuguese.

Core faculty have received extensive national and international recognition. Faculty research interests include development and labor economics; Andean ethnohistory and ethnology; African Diaspora art; conservation of the neotropics; cultural geography; social history of Latin America; democratic consolidation; Brazilian social stratification; comparative social movements; Luso-Brazilian literature and culture; colonial and modern Latin American literature, film, and culture; Spanish literature from the medieval to the modern period; and political economy. UW-Madison also publishes the journal *Luso-Brazilian Review*.

While the majority of candidates in the program are from the United States, a significant number are from Latin America, the Caribbean, and Iberia. Since 1994, 30 percent of the program's candidates have been Latino/Latin American/Caribbean. Seventy percent have been women. Funding assistance for candidates specializing in Latin America, the Caribbean, and Iberia includes Title VI Foreign Language and Area Studies (FLAS) fellowships, Helen Firstbrook Franklin Fellowship, Advanced Opportunity Fellowship (if applicable), Latin America course (260) teaching assistantships, and the Tinker-Nave Field Grant Program. Please contact the program office for more information on funding opportunities.

## RUSSIAN, EAST EUROPEAN AND CENTRAL ASIAN STUDIES

The Russian, East European and Central Asian studies (REECAS) program draws on the strength of long-established programs in anthropology, language and literature, political science, geography, history, folklore, sociology, and law. Faculty research interests include ethnicity and nationalism, legal problems of privatization, the politics and cultures of borderland regions in Eurasia, and the thought and politics of East-Central Europe.

Applicants are strongly encouraged to apply for the Foreign Language and Area Studies (FLAS) (<http://flas.wisc.edu>) fellowship, which is administered through CREECA and is due approximately February 15.

The departments offering courses pertaining to Russia, Eastern and Central Europe, and Central Asia include Anthropology, Communication Arts, Comparative Literature and Folklore Studies, Geography, History, Jewish Studies, Journalism, Languages and Cultures of Asia, Law, Political Science, Slavic Languages and Literature, Scandinavian Studies, Sociology, and Theatre and Drama.

## SOUTHEAST ASIAN STUDIES

The Center for Southeast Asian Studies offers a formal graduate program in Southeast Asian studies and facilitates interdisciplinary study on Southeast Asia in intercollege, professional, and other degree programs throughout the university. The Southeast Asian studies program provides students with the opportunity to concentrate their study of this dynamic region in several disciplines and professional areas: anthropology, communications (journalism), development, education, economics, environmental studies, geography, history, linguistics, literature, music and dance (performing arts), political science, public health, religion, sociology, and urban and regional planning, as well as natural resources, business, and law, and public policy. Faculty expertise and library holdings are particularly strong for in-depth study of Cambodia, Indonesia, Laos, Philippines, Thailand, and Vietnam. The goal of the program is to provide students with a strong area and language background on Southeast Asia and to prepare them for a range of academic and professional careers.

Language study is a critical component in area studies, and the center encourages students to develop proficiency in at least one Southeast Asian language. During the academic year, instruction is offered through the Department of Asian Languages and Cultures in five Southeast Asian languages: Filipino (Tagalog), Hmong, Indonesian, Thai, and Vietnamese. Each language is offered at two or more levels of instruction, with advanced readings and literature courses available in Indonesian. The center also facilitates participation in the Southeast Asian Studies Summer Institute (SEASSI), which provides instruction during the summers at multiple levels in eight languages of the region: Burmese, Filipino, Hmong, Indonesian/Malaysian, Javanese, Khmer, Lao, Thai, and Vietnamese, and depending on enrollments, Javanese. Though SEASSI is hosted by the center and based in Madison, it is open to students from anywhere. More information is available on the SEASSI website (<http://seassi.wisc.edu>).

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- African Studies, Doctoral Minor (p. 427)
- African Studies, Graduate/Professional Certificate (p. 428)
- East Asian Studies, Doctoral Minor (p. 429)
- European Studies, Graduate/Professional Certificate (p. 431)
- Global Studies, Doctoral Minor (p. 433)
- Latin American, Caribbean, and Iberian Studies, Doctoral Minor (p. 433)
- Latin American, Caribbean, and Iberian Studies, M.A. (p. 433)
- Russian, East European and Central Asian Studies, Doctoral Minor (p. 436)

- Russian, East European and Central Asian Studies, Graduate/Professional Certificate (p. 436)
- Russian, East European and Central Asian Studies, M.A. (p. 436)
- Southeast Asian Studies, Doctoral Minor (p. 441)
- Southeast Asian Studies, Graduate/Professional Certificate (p. 441)
- Southeast Asian Studies, M.A. (p. 442)

## PEOPLE

### AFRICAN STUDIES

**Faculty:** Professors Hutchinson (chair) (African Studies/Anthropology), Adell (Afro-American Studies), Anderson (Music), Barrows (Agricultural and Applied Economics), Baumann (Nursing), Bernault (History), Bershadly (Astronomy), Bloch (Curriculum and Instruction), Bosu (Veterinary Medicine), Bunn (Anthropology), Carter (Agricultural and Applied Economics), Chavas (Agricultural and Applied Economics), Christensen (Animal Health and Biomedical Sciences), Cowell (African Languages and Literature), Drewal (Art History/Afro-American Studies), Fair (Journalism and Mass Communication), Gallagher (Astronomy), Gjerde (Medicine and Public Health), Graziano (Medicine and Public Health), Haq (Medicine and Public Health), Hauner (African Languages and Literature), Hewson (Curriculum and Instruction), Johnson-Powell (Medicine and Public Health), Klug (Law), Ladson-Billings (Medicine and Public Health), Langston (Forest and Wildlife Ecology), McClintock (English), Memon (Languages and Cultures of Asia), Naughton (Geography), Nixon (English), Ntambi (Biochemistry), Olaniyan (African Languages and Literature/English), Payne (Political Science), Popkewitz (Curriculum and Instruction), Posner (Agronomy), Reed (Animal Sciences), Reschovsky (Agricultural and Applied Economics), Schatzberg (Political Science), Scheub (African Languages and Literature), Schleicher (African Languages and Literature), Seidman (Sociology), Shapiro (Agricultural and Applied Economics), Songolo (African Languages and Literature/French and Italian), Tesfagiorgis (Afro-American Studies), Thompson (Law), Tripp (Political Science/Gender and Women's Studies), Turner (Geography), Verna (Art), Wilcots (Astronomy), Zeichner (Curriculum and Instruction); Associate Professors Al-Ghadeer (African Languages and Literature), Anstett (Family Medicine), Chamberlain (History), Conway (Communication Arts), Conway (Pediatrics), Foltz (Agricultural and Applied Economics), Jenson (French and Italian), Lambert (Anthropology), Madureira (Comparative Literature), Nesper (Anthropology), Pickering (Anthropology), Sapaga (Spanish and Portuguese), Stambach (Educational Policy Studies), Sweet (History); Assistant Professors Hark (Design), Keller (History of Science), Kendall (Educational Policy Studies), Kodesh (History), Sellers (Social Work), Straus (Political Science), Wendland (Medicine and Public Health/Anthropology)

### EAST ASIAN STUDIES

**Faculty:** Professors Davis (Engineering Professional Development), Dong (Design Studies/SOHE), Dunne (Asian Languages and Cultures), Furumoto (Theater and Drama), Kern (Asian Languages and Cultures), Li (Linguistics), McGloin (Asian Languages and Cultures), Mori (Asian Languages and Cultures), Nienhauser (Asian Languages and Cultures), Ohnesorge (Law), Ohnuki-Tierney (Anthropology), Pan (Communication Arts), Phillips (Art History), Sidel (Law), Ridgely (director) (Asian Languages and Cultures), Young (History), Zhou (Anthropology); Associate Professors Cheng (History), Dennis (History), D'Etcheverry (Asian Languages and Cultures), Geyer (Asian Languages and Cultures), Huang (Asian Languages and Cultures), Huntington (Asian Languages and Cultures), Meulenbeld (Asian Languages and Cultures), Miyamoto

(Psychology), Raymo (Sociology), Shi (Agricultural and Applied Economics), Thal (History), Zhang (Asian Languages and Cultures); Assistant Professors Chan (History), Choy (Dance/Education), Fan (Theater and Drama), Kim (History), Kinzley (History), Li (Art History), Lim (Asian Languages and Cultures), Murthy (History), Yang (Asian Languages and Cultures), Zhu (Asian Languages and Cultures)

## EUROPEAN STUDIES

**Faculty:** Chair: Professor Ringe (Political Science); Faculty Steering Committee: Professors Allen (Scandinavian Studies), Brossard (Life Sciences Communication), Covington (European Studies), Ferree (Sociology), Klug (Law), Livorni (French and Italian), Olds (Geography), Potter (German), Silberman (German), Wolf (Scandinavian Studies)

## LATIN AMERICAN, CARIBBEAN, AND IBERIAN STUDIES

**Faculty:** Professors Scarano (LACIS director) (History), Allen (Plant Pathology), Albuquerque (Spanish and Portuguese), Apple (Curriculum and Instruction), Barham (Agricultural and Applied Economics), Beilin (Spanish and Portuguese), Bilbija (Spanish and Portuguese), Calderon (Music), Collins (Sociology), Corfis (Spanish and Portuguese), De Ferrari (Spanish and Portuguese), Drewal (Art History), Egea (Spanish and Portuguese), Escalante (Art), Ewig (Gender and Women's Studies), Frantzen (Spanish and Portuguese), Hildner (Spanish and Portuguese), Hill (English/American Indian Studies), Hutchinson (Spanish and Portuguese), Madureira (Spanish and Portuguese), Mallon (History), Marquez (Nelson Institute for Environmental Studies/Political Science), Medina (Spanish and Portuguese), Mello (Business), Naughton (Geography), Neinhuis (Horticulture), Olaniyan (African Languages and Literature), Patz (Nelson Institute for Environmental Studies), Pevehouse (Political Science), Podesta, (Spanish and Portuguese), Popkewitz (Education), Radano (Ethnomusicology), Rojas (Journalism and Mass Communication), Sanchez (Spanish and Portuguese), Strier (Anthropology), Sweet (History), Sytsma (Botany), Tochon (Curriculum and Instruction), Tripp (Political Science), Waller (Botany and Environmental Studies), Wattieux (Animal Science), Zamora (Spanish and Portuguese), Zepeda (Consumer Science); Associate Professors Alix-Garcia (Agricultural and Applied Economics), Cabrera (Dairy Science), Close (Spanish and Portuguese), Emshwiller (Botany) Gaus (Medicine), Hernandez (Spanish and Portuguese), Huneeus (Law), Kallenborn (Design Studies), Marin-Spiotta (Geography), Pellegrini (Spanish and Portuguese), Schechter (Agricultural and Applied Economics), Stafford (Spanish and Portuguese, Walker (Dance) ; Assistant Professor Clayton (Anthropology), Associate Faculty Barrett (Sociology), DiPrete Brown (Global Health), Egon (Spanish and Portuguese), Gemrich (Spanish and Portuguese), Kaaikiola Strohbusch (Spanish and Portuguese), Vargas, (LACIS associate director); Lecturers Druc (Anthropology), Muniagurria (Economics), Muyolema (Anthropology), Woodward (Botany)

## RUSSIAN, EAST EUROPEAN AND CENTRAL ASIAN STUDIES

**Faculty:** Professors Gerber (chair) (Sociology), Belodubrovskaya (Communication Arts), Bethea (Slavic Languages), Brenner (Jewish Studies), Buenger (Art History), Chamberlain (History), Ciancia (History), Dale (Art History), Danaher (Slavic Languages), Derin (Languages and Cultures of Asia), Dolinin (Slavic Languages), DuBois (Scandinavian Studies), Evans-Romaine (Slavic Languages), Filipowicz (Slavic Languages), Gehlbach (Political Science), Hendley (Law, Political Science), Herrera (Political Science), Hirsch (History), Hollander (Jewish Studies), Johnson (Educational Leadership and Policy Analysis), Kaiser (Geography), Kepley (Communication Arts), Kydd (Political Science), Lapina (Slavic Languages), Livanos (Comparative Literature),

Longinovic (Slavic Languages), McDonald (History), Michels (History), Miernowska (Slavic Languages), Neville (History), Radeloff (Forest and Wildlife Ecology), Reynolds (Slavic Languages), Schamiloglu (Languages and Cultures of Asia), Shevelenko (Slavic), Tishler (CREECA, Slavic Languages), Tumarkin (Slavic Languages), van de Water (Slavic Languages), Wink (History)

## SOUTHEAST ASIAN STUDIES

**Faculty:** Professors Bowie (Anthropology), Cowell (African Languages & Literature), Coxhead (Agricultural & Applied Economics), Gade (Nelson Institute for Environmental Studies), Gunther (Journalism & Mass Communications), Hansen (center director) (History), Macken (Linguistics), A. McCoy (History), Olds (Geography), Rafferty (Asian Languages & Cultures), Sidel (Law), Winichakul (History), Zhou (Anthropology); Associate Professors Nobles (Sociology); Assistant Professors Baird (Geography), Choy (Dance/Asian American Studies), Ho (Curriculum and Instruction/Education), Kim (Anthropology); Faculty Associates Barnard (Asian Languages & Cultures), Cullinane (History/Southeast Asian Studies), M. McCoy (Communication Arts/Southeast Asian Studies); Lecturers Chanprasert-Elbow (Asian Languages & Cultures), Dinh (Asian Languages & Cultures), Lee (Asian Languages & Cultures, Zamar (Asian Languages & Cultures); Librarian Ashmun (Southeast Asia Collection, Memorial Library)

## AFRICAN STUDIES, DOCTORAL MINOR

The doctoral minor in African studies is for students completing a Ph.D. at the University of Wisconsin–Madison who wish to focus their study on Africa. It requires four courses or seminars in two departments outside the student's major department. The African studies minor is completed under "Minor Option A" of the Graduate School regulations.

## SUGGESTIONS FOR STUDENTS PURSUING THE DOCTORAL MINOR IN AFRICAN STUDIES

- **Early Approval of Minor Program:** It is the student's responsibility as a graduate student to determine that all courses/seminars being completed are eligible for inclusion in the doctoral minor. Students are encouraged to consult with the African Studies Program advisor before taking courses intended to be included in the minor.
- **Language Training:** In planning the program, students should bear in mind the strong desirability of attaining competence in an African language. For many kinds of research, ability to use a language as a research tool is indispensable.
- **Auditing Courses:** In addition to courses and seminars formally taken for credit, students are encouraged to audit additional offerings to develop a broad competence in African studies.

## REQUIREMENTS

- Complete a minimum of 12 graduate credits from the African Studies Program core curriculum ([http://africa.wisc.edu/?page\\_id=26](http://africa.wisc.edu/?page_id=26)) in four courses or seminars outside the major field, and from at least two different departments. (Agricultural and applied economics, and economics courses/seminars are considered to be of one discipline for purposes of the minor.)
- Graduate credit is available only for courses with numbers of 300 or higher.

- At least one of these four units must be a course or seminar at the 700 to 900 level. No thesis or dissertation credits (990) may be used.
- Introductory first-year language courses may not be used for the doctoral minor in African studies even if they are numbered 300 or higher. Language courses may count for the minor only in so far as they do not overlap with departmental language requirements. When a department requires an African language for the Ph.D., language courses may count toward the minor only above and beyond four semesters of study in one language.
- Include no more than one independent reading and research course in the four courses or seminars submitted.

## SPECIAL CIRCUMSTANCES AND CONDITIONS IN COMPLYING WITH THE DOCTORAL MINOR

- **Grade Point Average:** A 3.0 grade point average is required for all courses submitted for the minor.
- **Credits from Other Universities:** Courses from other universities that were taken for graduate credit may count toward the minor with approval of the African Studies Program. Normally, only two of the required four courses or seminars may come from outside the University of Wisconsin–Madison. Exceptions may be proposed by petition.
- **Courses Taken as an Undergraduate:** Courses taken while the candidate was an undergraduate student are not eligible for credit toward the doctoral minor, including courses with graduate-level numbers.

## ADMISSIONS

- Meet with the African Studies Program advisor. To make an appointment, send an email to Aleia McCord, [aleia.mccord@wisc.edu](mailto:aleia.mccord@wisc.edu).
- Submit the Ph.D. Minor in African Studies application form and obtain the approval and signature of major professor. After you have completed the preliminary Ph.D. examinations, the African Studies Program director or designate will sign the warrant indicating completion of the minor.

## PEOPLE

**Faculty:** Professors Hutchinson (chair) (African Studies/Anthropology), Adell (Afro-American Studies), Anderson (Music), Barrows (Agricultural and Applied Economics), Baumann (Nursing), Bernault (History), Bershad (Astronomy), Bloch (Curriculum and Instruction), Bosu (Veterinary Medicine), Bunn (Anthropology), Carter (Agricultural and Applied Economics), Chavas (Agricultural and Applied Economics), Christensen (Animal Health and Biomedical Sciences), Cowell (African Languages and Literature), Drewal (Art History/Afro-American Studies), Fair (Journalism and Mass Communication), Gallagher (Astronomy), Gjerde (Medicine and Public Health), Graziano (Medicine and Public Health), Haq (Medicine and Public Health), Hauner (African Languages and Literature), Hewson (Curriculum and Instruction), Johnson-Powell (Medicine and Public Health), Klug (Law), Ladson-Billings (Medicine and Public Health), Langston (Forest and Wildlife Ecology), McClintock (English), Memon (Languages and Cultures of Asia), Naughton (Geography), Nixon (English), Ntambi (Biochemistry), Olaniyan (African Languages and Literature/English), Payne (Political Science), Popkewitz (Curriculum and Instruction), Posner (Agronomy), Reed (Animal Sciences), Reschovsky (Agricultural and Applied Economics), Schatzberg (Political Science), Scheub (African Languages and

Literature), Schleicher (African Languages and Literature), Seidman (Sociology), Shapiro (Agricultural and Applied Economics), Songolo (African Languages and Literature/French and Italian), Tesfagiorgis (Afro-American Studies), Thompson (Law), Tripp (Political Science/Gender and Women's Studies), Turner (Geography), Verna (Art), Wilcots (Astronomy), Zeichner (Curriculum and Instruction); Associate Professors Al-Ghadeer (African Languages and Literature), Anstett (Family Medicine), Chamberlain (History), Conway (Communication Arts), Conway (Pediatrics), Foltz (Agricultural and Applied Economics), Jenson (French and Italian), Lambert (Anthropology), Madureira (Comparative Literature), Nesper (Anthropology), Pickering (Anthropology), Sapega (Spanish and Portuguese), Stambach (Educational Policy Studies), Sweet (History); Assistant Professors Hark (Design), Keller (History of Science), Kendall (Educational Policy Studies), Kodesh (History), Sellers (Social Work), Straus (Political Science), Wendland (Medicine and Public Health/Anthropology)

## AFRICAN STUDIES, GRADUATE/PROFESSIONAL CERTIFICATE

The graduate certificate in African studies is awarded to students at the graduate level at the University of Wisconsin–Madison to certify advanced training in African studies. It is awarded by the African Studies Program and the Graduate School.

## REQUIREMENTS

- Complete at least 12 credits of African Studies Program core courses or extended core courses taught by an African Studies Program faculty member.
- Graduate credit is available only for courses numbered 300 or higher.
- Maintain a grade point average of 3.0 (on a 4.0 scale).
- Fulfill the requirements for a master's or doctoral degree at the University of Wisconsin–Madison.
- Include 9 credits outside the major department. No more than 3 credits will count from the major department.
- Complete at least one graduate-level seminar in African studies with a grade of AB or better. It may be in the major field.

## ADDITIONAL TERMS

- Include no more than 3 credits of directed reading and research or independent reading (AFRICAN 699 Directed Study, AFRICAN 999 Independent Reading and Research). No thesis/dissertation credits (AFRICAN 990 Thesis) may be included.
- Only one course in a single language may count toward the certificate, but two languages courses count if they are in different African languages.
- **Note:** All African languages and literature courses may count toward the graduate certificate within the limits set by the distribution requirements described above.

## ADMISSIONS

### Application for Graduate Certificate in African Studies

- Contact Aleia McCord, assistant director and advisor, at [aleia.mccord@wisc.edu](mailto:aleia.mccord@wisc.edu).

- Submit the application form for the graduate certificate in African studies and obtain the approval and signature of the major professor. After the student has completed the requirements for the graduate certificate in African studies, the African Studies Program director or designate will inform the major department that the student has earned the certificate.

## PEOPLE

**Faculty:** Professors Hutchinson (chair) (African Studies/Anthropology), Adell (Afro-American Studies), Anderson (Music), Barrows (Agricultural and Applied Economics), Baumann (Nursing), Bernault (History), Bershady (Astronomy), Bloch (Curriculum and Instruction), Bosu (Veterinary Medicine), Bunn (Anthropology), Carter (Agricultural and Applied Economics), Chavas (Agricultural and Applied Economics), Christensen (Animal Health and Biomedical Sciences), Cowell (African Languages and Literature), Drewal (Art History/Afro-American Studies), Fair (Journalism and Mass Communication), Gallagher (Astronomy), Gjerde (Medicine and Public Health), Graziano (Medicine and Public Health), Haq (Medicine and Public Health), Hauner (African Languages and Literature), Hewson (Curriculum and Instruction), Johnson-Powell (Medicine and Public Health), Klug (Law), Ladson-Billings (Medicine and Public Health), Langston (Forest and Wildlife Ecology), McClintock (English), Memon (Languages and Cultures of Asia), Naughton (Geography), Nixon (English), Ntambi (Biochemistry), Olaniyan (African Languages and Literature/English), Payne (Political Science), Popkewitz (Curriculum and Instruction), Posner (Agronomy), Reed (Animal Sciences), Reschovsky (Agricultural and Applied Economics), Schatzberg (Political Science), Scheub (African Languages and Literature), Schleicher (African Languages and Literature), Seidman (Sociology), Shapiro (Agricultural and Applied Economics), Songolo (African Languages and Literature/French and Italian), Tesfagiorgis (Afro-American Studies), Thompson (Law), Tripp (Political Science/Gender and Women's Studies), Turner (Geography), Verna (Art), Wilcots (Astronomy), Zeichner (Curriculum and Instruction); Associate Professors Al-Ghadeer (African Languages and Literature), Anstett (Family Medicine), Chamberlain (History), Conway (Communication Arts), Conway (Pediatrics), Foltz (Agricultural and Applied Economics), Jenson (French and Italian), Lambert (Anthropology), Madureira (Comparative Literature), Nesper (Anthropology), Pickering (Anthropology), Sapega (Spanish and Portuguese), Stambach (Educational Policy Studies), Sweet (History); Assistant Professors Hark (Design), Keller (History of Science), Kendall (Educational Policy Studies), Kodesh (History), Sellers (Social Work), Straus (Political Science), Wendland (Medicine and Public Health/Anthropology)

## EAST ASIAN STUDIES, DOCTORAL MINOR

Students who are candidates for the Ph.D. degree in another department or program may obtain an interdisciplinary minor in East Asian studies by earning a minimum of 12 credits in East Asian area studies. The credits must be earned in at least three departments other than the major department.

## REQUIREMENTS

### COURSES

Interdisciplinary courses may be taken from many departments. Courses must contain a minimum of 25 percent East Asian content. For a more complete and up to date listing of currently available courses, please contact East Asian Studies. UW–Madison Graduate School regulations concerning the use of cross-listed courses as part of the minor are to be observed when selecting courses. Because the instructors and contents of a course may change over time, please consult the East Asian studies student advisor for confirmation on whether a course may count for a doctoral minor.

Code	Title	Credits
<b>Agricultural and Applied Economics</b>		
A A E/INTL ST 374	The Growth and Development of Nations in the Global Economy	3
A A E/ECON 474	Economic Problems of Developing Areas	3
<b>Anthropology</b>		
ANTHRO 300	Cultural Anthropology: Theory and Ethnography	3
ANTHRO 330	Topics in Ethnology	3-4
ANTHRO 357	Introduction to the Anthropology of Japan	3
ANTHRO 358	Anthropology of China	3
ANTHRO 490	Undergraduate Seminar	3
ANTHRO 940	Seminar-Problems in Cultural Anthropology	3
<b>Art History</b>		
ART HIST 307	Early Chinese Art: From Antiquity to the Tenth Century	3
ART HIST 308	Later Chinese Art: From the Tenth Century to the Present	3
ART HIST 371	Chinese Painting	3-4
ART HIST 372	Arts of Japan	3-4
ART HIST 375	Later Japanese Painting and Woodblock Prints	3-4
ART HIST 411	Topics in Asian Art	3-4
ART HIST 475	Japanese Ceramics and Allied Arts	3
ART HIST/RELIG ST 478	Art and Religious Practice in Medieval Japan	3
ART HIST 575	Proseminar in Japanese Art	3
ART HIST 576	Proseminar in Chinese Art	3
ART HIST 875	Seminar in Japanese Art	3
ART HIST 876	Seminar in Chinese Art	3
<b>Asian Languages and Cultures</b>		
All upper-level/graduate-level courses on East Asia offered by the Department of Asian Languages and Cultures may be taken as part of the East Asian studies Ph.D. minor <sup>1</sup>		
<b>Communication Arts</b>		
COM ARTS 458	Global Media Cultures	3
<b>Comparative Literature</b>		
COMP LIT 775	Literature and Related Disciplines	3

**Curriculum and Instruction**

CURRIC 564	Advanced Problems on the Teaching of World Languages	3
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**Dance**

DANCE 560	Current Topics in Dance: Workshop	3
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**East Asian Studies**

E A STDS/ E ASIAN 300	Humanities Topics in East Asian Studies	3
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E A STDS 301	Social Studies Topics in East Asian Studies	3
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E A STDS 698	Directed Study	1-3
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E A STDS 699	Directed Study	2-3
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**Economics**

ECON 364	Survey of International Economics	4
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ECON 464	International Trade and Finance	3
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ECON 467	International Industrial Organizations	3
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ECON 475	Economics of Growth	4
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**History**

HISTORY 332	Islam Reform and Revolution in Central Asia	3-4
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HISTORY 336	Chinese Economic and Business History: From Silk to iPhones	3-4
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HISTORY/ E A STDS 337	Social and Intellectual History of China, 589 AD-1919	3-4
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HISTORY/ E A STDS 341	History of Modern China, 1800-1949	3-4
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HISTORY/ E A STDS 342	History of the Peoples Republic of China, 1949 to the Present	3-4
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HISTORY/ E A STDS 454	Samurai: History and Image	3-4
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HISTORY/ E A STDS 456	Pearl Harbor & Hiroshima: Japan, the US & The Crisis in Asia	3-4
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HISTORY 600	Advanced Seminar in History	3
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HISTORY 725	Seminar in East Asian History	3
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HISTORY 753	Seminar-Comparative World History	3
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HISTORY 854	Seminar in Modern Chinese History	3
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HISTORY 855	Seminar in Japanese History	3
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**International Business**

INTL BUS/M H R 403	Global Issues in Management	3
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INTL BUS/ MARKETNG 420	Global Marketing Strategy	3
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INTL BUS/ REAL EST 430	International Real Estate	3
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INTL BUS/ FINANCE 445	Multinational Business Finance	3
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INTL BUS/ FINANCE 745	Multinational Business Finance	3
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INTL BUS/ REAL EST 730	International Real Estate	3
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INTL BUS/OTM 755	International Operations: Problems and Administration	3
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**Journalism and Mass Communication**

JOURN 621	Mass Communication in Developing Nations	4
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**Languages and Cultures of Asia**

All upper-level/graduate-level courses concerned with the languages, cultures and religions of China, Japan, Korea, Tibet, or Chinese ethnic minorities offered by the Department of Languages and Cultures of Asia may be taken as part of the East Asian Studies Ph.D. minor <sup>2</sup>

**Law**

LAW 872	Legal Issues Involving North America and East Asia	2
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LAW 940	Law and Contemporary Problems (The State in Economic Development)	2
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LAW 940	Law and Contemporary Problems (Chinese Law)	2
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LAW 953	Selected Problems in Business Organization-Seminar	1
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**Literature in Translation**

LITTRANS 368	Modern Japanese Fiction	3
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LITTRANS 372	Classical Japanese Prose in Translation	3
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LITTRANS 373	Topics in Japanese Literature	3
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**Music**

MUSIC/ FOLKLORE 402	Musical Cultures of the World	3
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MUSIC/ FOLKLORE 515	Proseminar in Ethnomusicology	3
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MUSIC/ FOLKLORE 915	Seminar in Ethnomusicology	3
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**Political Science**

POLI SCI 351	Politics of the World Economy	3-4
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POLI SCI 313	Bargaining in the Global Economy	3
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POLI SCI 346	China in World Politics	3-4
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POLI SCI 421	The Challenge of Democratization	3-4
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POLI SCI 640	Politics of Japan	3-4
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POLI SCI 324	Political Power in Contemporary China	3-4
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POLI SCI 654	Politics of Revolution	3-4
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POLI SCI 601	Proseminar: Topics in Political Science	3
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**Public Affairs**

PUB AFFR 857	Political Economy of Corruption and Good Governance	3
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**Religious Studies**

Numerous East Asia-related religious studies courses are available. See cross-listings under East Asian Languages and Literature and Languages and Cultures of Asia

**Sociology**

SOC 496	Topics in Sociology	3
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SOC 918	Seminar in Comparative Sociology of Contemporary Capitalism	3
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**Theatre and Drama (Asian Theatre)**

THEATRE/ FOLKLORE 326	Introduction to Asian Performance	3
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THEATRE 351	Fundamentals of Asian Stage Discipline	3
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THEATRE 526	The Theatres of China and Japan	3
THEATRE 911	Seminar-Problems in Theatre and Drama	3

<sup>1</sup> See course listings for Asian Languages and Cultures; please note that these courses may continue to be listed under East Asian Languages and Literature. **Students interested in the courses offered under Asian Languages and Cultures should be aware that the course numbers for these courses may be changed by the academic year 2016-2017. Students are, therefore, encouraged to contact the Center for East Asian Studies or the Department of Asian Languages and Cultures for clarification.**

<sup>2</sup> See course listings for Languages and Cultures of Asia.

## PEOPLE

**Faculty:** Professors Davis (Engineering Professional Development), Dong (Design Studies/SOHE), Dunne (Asian Languages and Cultures), Furumoto (Theater and Drama), Kern (Asian Languages and Cultures), Li (Linguistics), McGloin (Asian Languages and Cultures), Mori (Asian Languages and Cultures), Nienhauser (Asian Languages and Cultures), Ohnesorge (Law), Ohnuki-Tierney (Anthropology), Pan (Communication Arts), Phillips (Art History), Sidel (Law), Ridgely (director) (Asian Languages and Cultures), Young (History), Zhou (Anthropology); Associate Professors Cheng (History), Dennis (History), D'Etcheverry (Asian Languages and Cultures), Geyer (Asian Languages and Cultures), Huang (Asian Languages and Cultures), Huntington (Asian Languages and Cultures), Meulenbeld (Asian Languages and Cultures), Miyamoto (Psychology), Raymo (Sociology), Shi (Agricultural and Applied Economics), Thal (History), Zhang (Asian Languages and Cultures); Assistant Professors Chan (History), Choy (Dance/Education), Fan (Theater and Drama), Kim (History), Kinzley (History), Li (Art History), Lim (Asian Languages and Cultures), Murthy (History), Yang (Asian Languages and Cultures), Zhu (Asian Languages and Cultures)

## EUROPEAN STUDIES, GRADUATE/ PROFESSIONAL CERTIFICATE

The European studies program offers graduate students the opportunity to earn a certificate in European studies. Acquiring the certificate is of value to graduate students who need to demonstrate the breadth of their expertise in European studies when applying for jobs. For example, applicants for such academic positions as a joint appointment with a European studies center or a position within a single discipline but teaching courses focused on Europe (e.g., European politics, European history, or the economics of the European Union) are often required to demonstrate a knowledge of the continent that extends beyond their own discipline.

The structure of the certificate is intended to give students the greatest possible flexibility in developing their own programs. Each student will seek admission to the Graduate School through regular procedures and enroll in the specific major program in which the student intends to pursue a higher degree. The student's program of European coursework must be developed by the student in consultation with the advisor and approved by the chair of European studies. Coursework should consist of at least 15 credits in courses from at least three disciplines that either cover Europe as a whole (such as history of Europe since 1945) or that together cover at least two separate European countries (e.g.,

modern French history, and German cultural studies). Students must also demonstrate a working knowledge of at least one European language in addition to English. (Acceptable proof of knowledge includes transcripts, test scores, or a language evaluation from a faculty member.) To assure competence in the major discipline, the European studies certificate will only be awarded after a student has completed at least the master's degree in the major program.

Doctoral students may use the certificate to fulfill requirements toward a distributed minor.

## REQUIREMENTS

### COURSES

Below is a sampling of regularly offered courses in European studies. Additional courses with significant European content may be offered in any single semester—for more information, consult the website (<http://europe.wisc.edu/certificate>) of the Center for European Studies. All civilization, culture, and literature courses offered in any of the European language departments also qualify for the certificate; language, grammar, and conversation courses do not.

Code	Title	Credits
<b>Anthropology</b>		
ANTHRO 309	Prehistoric Europe	3
<b>Art History</b>		
ART HIST/ CLASSICS 300	The Art and Archaeology of Ancient Greece	3-4
ART HIST 302	Greek Sculpture	3-4
ART HIST/ CLASSICS 304	The Art and Archaeology of Ancient Rome	3-4
ART HIST 350	19th Century Painting in Europe	3-4
ART HIST 351	20th Century Art in Europe	3-4
ART HIST 360	Early Modern Art of Northern Europe: Renaissances and Reformations	3
ART HIST 454	Art in Germany, 1900-1945	3-4
ART HIST 515	Proseminar in Medieval Art	3
ART HIST 525	Proseminar in Italian Renaissance Art	3
ART HIST 555	Proseminar in 19th Century European Art	3
ART HIST 556	Proseminar in 20th Century European Art	3
ART HIST/ CLASSICS 700	The Art and Archaeology of Ancient Greece	3
ART HIST/ CLASSICS 704	The Art and Archaeology of Ancient Rome	3
ART HIST 715	Topics in Medieval Art	3
ART HIST 805	Seminar-Ancient Art and Architecture	3
ART HIST 825	Seminar-Italian Renaissance Art	3
ART HIST 855	Seminar-19th Century European Art	3
ART HIST 856	Graduate Seminar in Twentieth Century European Art	3

### Communication Arts

COM ARTS 455	French Film	3
COM ARTS/ ITALIAN 460	Italian Film	3
COM ARTS/ GERMAN 655	German Film	3
<b>Economics</b>		
ECON 666	Issues in International Finance	3-4
<b>English</b>		
ENGL 417	History of the English Language	3
ENGL/RELIG ST 434	Milton	3
ENGL/ MEDIÉVAL 426	Chaucers Courtly Poetry	3
ENGL 459	Three American Novelists	3
ENGL 501	Writing Internship	3
ENGL/THEATRE 575	British Drama, 1914 to Present	3
<b>Geography</b>		
GEOG 349	Europe	3
<b>History</b>		
HISTORY 307	A History of Rome	3-4
HISTORY 320	Early Modern France, 1500-1715	3-4
HISTORY 333	The Renaissance	3-4
HISTORY/ RELIG ST 334	The Reformation	3-4
HISTORY 350	The First World War and the Shaping of Twentieth-Century Europe	3-4
HISTORY 351	Seventeenth-Century Europe	3-4
HISTORY 357	The Second World War	3-4
HISTORY 359	History of Europe Since 1945	3-4
HISTORY 361	The Emergence of Mod Britain: England 1485-1660	3-4
HISTORY 410	History of Germany, 1871 to the Present	3-4
HISTORY/ SCAND ST 431	History of Scandinavia to 1815	3
HISTORY 474	European Social History, 1830-1914	3-4
HISTORY 475	European Social History, 1914- Present	3-4
HISTORY/ RELIG ST 512	The Enlightenment and Its Critics	3
HISTORY 514	European Cultural History Since 1870	3-4
HISTORY/ SCAND ST 577	Contemporary Scandinavia: Politics and History	3-4
HISTORY 707	Proseminar in Early Modern European History, 1500-1789	3
HISTORY 805	Seminar-Medieval History	1-3
HISTORY 837	Seminar-History of Modern Britain and Ireland	1-3
HISTORY 845	Seminar-Central European History	1-3
HISTORY 867	Seminar-European Social & Intellectual History	1-3
HISTORY 868	Seminar in Modern French History	1-3
HISTORY 891	Proseminar in Modern European History	1-3

**History of Science**

HIST SCI/CLASSICS/ HISTORY/MED HIST/ S&A PHM 561	Greek and Roman Medicine and Pharmacy	3
HIST SCI 903	Seminar: Medieval, Renaissance, and 17th Century Science	3

**International Business**

INTL BUS/ FRENCH 313	Professional Communication and Culture in the Francophone World	3
INTL BUS/ FINANCE 445	Multinational Business Finance	3

**Law**

LAW 818	Comparative Law	2-3
LAW 942	European Union Law	2-3

**Literature in Translation**

LITTRANS/ THEATRE 335	In Translation: The Drama of Henrik Ibsen	3-4
LITTRANS/ FOLKLORE/ MEDIÉVAL 346	In Translation: The Icelandic Sagas	3-4
LITTRANS 410	In Translation: Special Topics in Italian Literature	3
LITTRANS 473	Polish Literature (in Translation) since 1863	3

**Music**

MUSIC 411	Survey of Music in the Middle Ages	3
MUSIC 412	Survey of Music in the Renaissance	3
MUSIC 413	Survey of Music in the Baroque Era	3
MUSIC 414	Survey of Music in the Classic Era	3
MUSIC 415	Survey of Music in the Romantic Era	3

**Philosophy**

PHILOS 454	Classical Philosophers	3
PHILOS/ CLASSICS 830	Advanced History of Philosophy	3

**Political Science**

POLI SCI 340	The European Union: Politics and Political Economy	3-4
POLI SCI 538	Politics and Policies in the European Union	3-4
POLI SCI 659	Politics and Society: Contemporary Eastern Europe	3-4

**Sociology**

SOC/FRENCH/ GERMAN/HISTORY/ POLI SCI 804	Interdisciplinary Western European Area Studies Seminar	3
SOC 918	Seminar in Comparative Sociology of Contemporary Capitalism	3

**Theatre and Drama**

THEATRE 522	Experimental Drama: The Theatre of Europe 1850-the Present	3
THEATRE/ENGL 575	British Drama, 1914 to Present	3
THEATRE/ENGL 731	Advanced Theatre History 500 BC to 1700	3



## PEOPLE

**Faculty:** Chair: Professor Ringe (Political Science); Faculty Steering Committee: Professors Allen (Scandinavian Studies), Brossard (Life Sciences Communication), Covington (European Studies), Ferree (Sociology), Klug (Law), Livorni (French and Italian), Olds (Geography), Potter (German), Silberman (German), Wolf (Scandinavian Studies)

## GLOBAL STUDIES, DOCTORAL MINOR

A doctoral minor in global studies will be of interest to doctoral students who plan for careers in public policy, research, and academia, as well as those interested in careers in government, media, and the private and nonprofit sectors. The minor emphasizes systemic approaches to globalization in an interdisciplinary context, thereby distinguishing itself from existing graduate course work in international studies that emphasize specialization in particular areas of the world (e.g., East Asian studies or African studies) or specific aspects of globalization (e.g., global health or global legal studies). The minor is intended to provide doctoral students with an institutional setting to pursue the study of globalization as a complement to their major degree program.

## REQUIREMENTS

Students who minor in global studies will be required to take the core Global Studies Graduate Seminar (INTL ST 720 Global Studies Seminar) and related course work. In addition to the 3-credit Global Studies Graduate Seminar, students must take 9 credits from a list of approved courses. Students must take one course from three of the four categories:

1. Global Culture and Humanity
2. Global Commons
3. World Affairs and the Global Economy
4. Human Security and Global Citizenship

See the program website (<http://global.wisc.edu>) for the course listings.

## LATIN AMERICAN, CARIBBEAN, AND IBERIAN STUDIES, DOCTORAL MINOR

Candidates for a Ph.D. degree in other departments may obtain a minor in Latin American, Caribbean and Iberian studies by taking a minimum of 12 credits in graduate courses related to Latin America, the Caribbean, Spain, or Portugal. A list of courses available for LACIS credit is prepared each semester by the program staff. This work is to be done outside the major field of the candidate's doctoral specialization. One course cross-listed with the major may be used for the minor so long as it is not taught by a faculty member from the major department and is not a required course for the major. The LACIS M.A. may be used as a Ph.D. minor, as long as the degree program meets the minor requirements. The LACIS Ph.D. minor is an Option A minor. All Ph.D. minor candidates must consult with the program director or associate director at the time they

begin their work for the Ph.D. minor. Certification of proficiency in Spanish or Portuguese is required. Contact the LACIS office for information on language certification.

## REQUIREMENTS

A minor in Latin American, Caribbean and Iberian studies consists of at least 12 graduate credits in LACIS-approved coursework.

## PEOPLE

**Faculty:** Professors Scarano (LACIS director) (History), Allen (Plant Pathology), Albuquerque (Spanish and Portuguese), Apple (Curriculum and Instruction), Barham (Agricultural and Applied Economics), Beilin (Spanish and Portuguese), Bilbija (Spanish and Portuguese), Calderon (Music), Collins (Sociology), Corfis (Spanish and Portuguese), De Ferrari (Spanish and Portuguese), Drewal (Art History), Egea (Spanish and Portuguese), Escalante (Art), Ewig (Gender and Women's Studies), Frantzen (Spanish and Portuguese), Hildner (Spanish and Portuguese), Hill (English/American Indian Studies), Hutchinson (Spanish and Portuguese), Madureira (Spanish and Portuguese), Mallon (History), Marquez (Nelson Institute for Environmental Studies/Political Science), Medina (Spanish and Portuguese), Mello (Business), Naughton (Geography), Neinhuis (Horticulture), Olaniyan (African Languages and Literature), Patz (Nelson Institute for Environmental Studies), Pevehouse (Political Science), Podesta, (Spanish and Portuguese), Popkewitz (Education), Radano (Ethnomusicology), Rojas (Journalism and Mass Communication), Sanchez (Spanish and Portuguese), Strier (Anthropology), Sweet (History), Sytsma (Botany), Tochon (Curriculum and Instruction), Tripp (Political Science), Waller (Botany and Environmental Studies), Wattieux (Animal Science), Zamora (Spanish and Portuguese), Zepeda (Consumer Science); Associate Professors Alix-Garcia (Agricultural and Applied Economics), Cabrera (Dairy Science), Close (Spanish and Portuguese), Emshwiller (Botany) Gaus (Medicine), Hernandez (Spanish and Portuguese), Huneeus (Law), Kallenborn (Design Studies), Marin-Spiotta (Geography), Pellegrini (Spanish and Portuguese), Schechter (Agricultural and Applied Economics), Stafford (Spanish and Portuguese, Walker (Dance) ; Assistant Professor Clayton (Anthropology), Associate Faculty Barrett (Sociology), DiPrete Brown (Global Health), Egon (Spanish and Portuguese), Gemrich (Spanish and Portuguese), Kaaikiola Strohbusch (Spanish and Portuguese), Vargas, (LACIS associate director); Lecturers Druc (Anthropology), Muniagurria (Economics), Muyolema (Anthropology), Woodward (Botany)

## LATIN AMERICAN, CARIBBEAN, AND IBERIAN STUDIES, M.A.

The Latin American, Caribbean, and Iberian Studies (LACIS) Program offers three graduate programs: master of arts, a doctoral minor, and a dual degree in law and Latin American, Caribbean, and Iberian studies.

The mission of the graduate program is to provide an interdisciplinary foundation for the study of Latin America, the Caribbean, Spain, and Portugal. The University of Wisconsin–Madison is nationally recognized for excellence in research and teaching on these regions. The LACIS program includes a core faculty of more than 50 members and course offerings in 40 disciplines and professional schools, including agricultural and applied economics, anthropology, business, community and environmental sociology, comparative literature, environmental studies,

gender and women's studies, geography, history, law, music, political science, population health, Quechua, Yucatec Maya, sociology, and Spanish and Portuguese.

Core faculty have received extensive national and international recognition. Faculty research interests include development and labor economics; Andean ethnohistory and ethnology; African Diaspora art; conservation of the neotropics; cultural geography; social history of Latin America; democratic consolidation; Brazilian social stratification; comparative social movements; Luso-Brazilian literature and culture; colonial and modern Latin American literature, film, and culture; Spanish literature from the medieval to the modern period; and political economy. UW–Madison also publishes the journal *Luso-Brazilian Review*.

While the majority of candidates in the program are from the United States, a significant number are from Latin America, the Caribbean, and Iberia. Since 1994, 30 percent of the program's candidates have been Latino/Latin American/Caribbean. Seventy percent have been women. Funding assistance for candidates specializing in Latin America, the Caribbean, and Iberia includes Title VI Foreign Language and Area Studies (FLAS) fellowships, Helen Firstbrook Franklin Fellowship, Advanced Opportunity Fellowship (if applicable), Latin America course (260) teaching assistantships, and the Tinker-Nave Field Grant Program. Please contact the program office for more information on funding opportunities.

Originally established in the 1930s, the program has a long history of university and federal support. Since 1961, LACIS has been recognized as a National Resource Center (NRC) by the U.S. Department of Education, which provides Title VI support for program activities and for FLAS fellowships. The program has a faculty of extraordinary diversity and across-the-board strength. These strengths encompass not only the classic social science and humanities fields, but also the natural and ecological sciences and the agricultural and professional schools. It is unlikely that any one university exceeds the overall range of UW–Madison's faculty expertise in Latin American, Caribbean, and Iberian studies. The UW–Madison's general excellence is reflected by its consistent ranking among the top ten graduate universities in the United States.

## DUAL DEGREE PROGRAM

Candidates interested in earning a dual degree in law and Latin American, Caribbean, and Iberian studies must apply to both programs and must meet the degree requirements for both programs. Applicants should follow normal procedures for admission to the Graduate School. They may, however, substitute LSAT scores for the GRE. The dual degree program can be completed in seven semesters. Typically, the student begins the LACIS portion of the program in the second year of Law School. See the program office for more information on course work.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the degree coursework (15 credits out of a total 30 credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNIVERSITY SPECIAL

Students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. The student would not be allowed to count courses toward the 50% graduate coursework minimum unless taken at the 700 level or above.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

6 credits of LACIS/A A E/ANTHRO/C&E SOC/GEOG/HISTORY/POLI SCI/PORTUG/SOC/SPANISH 982 Interdepartmental Seminar in the Latin-American Area (or equivalent seminar)

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).

- Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

The program director or associate director will be the formal advisor for all students in the program. In addition, students are expected to work with a faculty advisor to complete a final paper to be defended to a three member committee.

## ASSESSMENT AND EXAMINATIONS

Candidates are expected to finish the degree in four semesters of full-time study; after four semesters, the student must petition for extension. Time to degree will be customized for students in dual or articulated degree programs. Students must also petition for part-time (fewer than 6 credits per semester) status.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence.

## LANGUAGE REQUIREMENTS

Candidates must obtain certification of basic proficiency in Spanish or Portuguese or offer proof of proficiency.

## ADMISSIONS

Admission to the master's program is competitive and requires a strong undergraduate academic background, a clear demonstration of interdisciplinary interests, and a strong statement of purpose illustrating the applicant's goals. In addition to the online application, applicants must submit to the program: transcript(s) of all undergraduate work, three letters of recommendation, Graduate Record Exam (GRE) scores, a statement of reasons for graduate study, and a current CV.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students should demonstrate an understanding of the principal historical, societal, scientific and humanist concerns that are rooted in the realities of the broader Latin American, Caribbean and Iberian regions. These include but are not limited to: knowledge of pre-colonial indigenous societal organizations; the experience of colonialism; the biodiversity of the region; and the regions tumultuous social, economic and political trajectory and the specific challenges these have posed for the peoples of the regions. In particular, students should demonstrate an understanding of the unique historical trajectory of these regions as the product of the global confluence of various cultural, social, political and economic influences beginning in the late 15th century. This includes not only the especially profound mutual impact of Iberian colonization of the Americas, but also the larger context of European imperial conflict in the Western Hemisphere, the central place of African slavery in the development of the Atlantic economy, and the significant and multifaceted role that the United States has played in shaping Latin America and the Caribbean. Students should recognize how these histories and contemporary realities impact more specific

questions, contemporary or historical, and humanist, social scientific or scientific in nature.

- Within students' more specific area of interest, they should be able to articulate key theoretical and empirical concerns and identify appropriate theoretical approaches to the problem of interest and identify empirical sources that can help to answer that question or problem.
- Students should demonstrate proficiency, and preferably advanced language ability, in either Spanish or Portuguese. Additional indigenous language learning, such as Kichwa, Quechua, Quich and Nahuatil, are also encouraged.
- Students should demonstrate the ability to conduct interdisciplinary research that
  - includes a critical literature review,
  - selects appropriate research methodologies,
  - proposes an appropriate research design to collect, analyze, interpret, and present findings, and
  - successfully carries out this research plan.
- Students should demonstrate the ability to articulate and elaborate their research findings.

## PROFESSIONAL CONDUCT

- Students should recognize and apply principles of ethical and professional conduct. This includes, in particular, an understanding of the ethics of research and professional activities in cross-cultural contexts.

## PEOPLE

**Faculty:** Professors Scarano (LACIS director) (History), Allen (Plant Pathology), Albuquerque (Spanish and Portuguese), Apple (Curriculum and Instruction), Barham (Agricultural and Applied Economics), Beilin (Spanish and Portuguese), Bilbija (Spanish and Portuguese), Calderon (Music), Collins (Sociology), Corfis (Spanish and Portuguese), De Ferrari (Spanish and Portuguese), Drewal (Art History), Egea (Spanish and Portuguese), Escalante (Art), Ewig (Gender and Women's Studies), Frantzen (Spanish and Portuguese), Hildner (Spanish and Portuguese), Hill (English/American Indian Studies), Hutchinson (Spanish and Portuguese), Madureira (Spanish and Portuguese), Mallon (History), Marquez (Nelson Institute for Environmental Studies/Political Science), Medina (Spanish and Portuguese), Mello (Business), Naughton (Geography), Neinhuis (Horticulture), Olaniyan (African Languages and Literature), Patz (Nelson Institute for Environmental Studies), Pevehouse (Political Science), Podesta, (Spanish and Portuguese), Popkewitz (Education), Radano (Ethnomusicology), Rojas (Journalism and Mass Communication), Sanchez (Spanish and Portuguese), Strier (Anthropology), Sweet (History), Sytsma (Botany), Tochon (Curriculum and Instruction), Tripp (Political Science), Waller (Botany and Environmental Studies), Wattieux (Animal Science), Zamora (Spanish and Portuguese), Zepeda (Consumer Science); Associate Professors Alix-Garcia (Agricultural and Applied Economics), Cabrera (Dairy Science), Close (Spanish and Portuguese), Emshwiller (Botany) Gaus (Medicine), Hernandez (Spanish and Portuguese), Huneeus (Law), Kallenborn (Design Studies), Marin-Spiotta (Geography), Pellegrini (Spanish and Portuguese), Schechter (Agricultural and Applied Economics), Stafford (Spanish and Portuguese, Walker (Dance) ; Assistant Professor Clayton (Anthropology), Associate Faculty Barrett (Sociology), DiPrete Brown (Global Health), Egon (Spanish and Portuguese), Gemrich (Spanish and Portuguese), Kaaikiola Strohbusch (Spanish and Portuguese), Vargas,

(LACIS associate director); Lecturers Druc (Anthropology), Muniagurria (Economics), Muyolema (Anthropology), Woodward (Botany)

## RUSSIAN, EAST EUROPEAN AND CENTRAL ASIAN STUDIES, DOCTORAL MINOR

### REQUIREMENTS

Recognition of interdisciplinary training at the graduate level can be acquired with a REECAS certificate. Doctoral minor requirements in specific fields can also be fulfilled under the REECAS program. The requirements for a doctoral minor under Option A (external minor) may be satisfied by completing 9 credits of graduate courses in Russian, East European and Central Asian studies. These nine credits must be distributed over at least two departments outside the student's major department. Students should contact the program office for specific information regarding these requirements. Doctoral students may not earn both the REECAS graduate/professional certificate and the REECAS doctoral minor.

### PEOPLE

**Faculty:** Professors Gerber (chair) (Sociology), Belodubrovskaya (Communication Arts), Bethea (Slavic Languages), Brenner (Jewish Studies), Buenger (Art History), Chamberlain (History), Ciana (History), Dale (Art History), Danaher (Slavic Languages), Derin (Languages and Cultures of Asia), Dolinin (Slavic Languages), DuBois (Scandinavian Studies), Evans-Romaine (Slavic Languages), Filipowicz (Slavic Languages), Gehlbach (Political Science), Hendley (Law, Political Science), Herrera (Political Science), Hirsch (History), Hollander (Jewish Studies), Johnson (Educational Leadership and Policy Analysis), Kaiser (Geography), Kepley (Communication Arts), Kydd (Political Science), Lapina (Slavic Languages), Livanos (Comparative Literature), Longinovic (Slavic Languages), McDonald (History), Michels (History), Miernowska (Slavic Languages), Neville (History), Radeloff (Forest and Wildlife Ecology), Reynolds (Slavic Languages), Schamiloglu (Languages and Cultures of Asia), Shevelenko (Slavic), Tishler (CREECA, Slavic Languages), Tumarkin (Slavic Languages), van de Water (Slavic Languages), Wink (History)

## RUSSIAN, EAST EUROPEAN AND CENTRAL ASIAN STUDIES, GRADUATE/PROFESSIONAL CERTIFICATE

The graduate/professional certificate in REECAS provides graduate students with a general background in the areas of anthropology, economics, foreign policy, geography, government and politics, history, language and literature, law, and sociology. It also provides specific knowledge about one of these areas. With its emphasis on interdisciplinary study, a REECAS certificate enhances the training of Ph.D. candidates who wish to teach and do research at the college level, and serves the needs of M.A. and Ph.D. students who wish to make a

career in broadcasting, government service, journalism, library work, or other professions requiring a well-rounded acquaintance with this diverse and highly important area.

Although there is a certain amount of flexibility built into the REECAS certificate to select courses and a language involving Eastern Europe other than Russian, students seeking a career in a field connected with REECAS would do best to combine the study of another language with Russian. Czech, Finnish, Polish, Russian, Serbo-Croatian, Turkish/Azeri, and Uzbek are offered regularly; Bulgarian, Kazak, and Romanian may be taught from time to time. The certificate student, in consultation with the graduate advisor, must choose an academically coherent group of courses which focuses on a specific geographic area and language.

### REQUIREMENTS

To receive the certificate, a student must take 12 credits of required courses distributed over three programs. Of these required courses, one must be a seminar in which a research paper is written on a topic approved by the major professor. The student must demonstrate a working knowledge of one language of Eastern Europe or the former Soviet Union before beginning the second year of REECAS and will be expected to write the seminar paper utilizing original source material in the target language(s). Students should contact the program office for specific information regarding these requirements.

### PEOPLE

**Faculty:** Professors Gerber (chair) (Sociology), Belodubrovskaya (Communication Arts), Bethea (Slavic Languages), Brenner (Jewish Studies), Buenger (Art History), Chamberlain (History), Ciana (History), Dale (Art History), Danaher (Slavic Languages), Derin (Languages and Cultures of Asia), Dolinin (Slavic Languages), DuBois (Scandinavian Studies), Evans-Romaine (Slavic Languages), Filipowicz (Slavic Languages), Gehlbach (Political Science), Hendley (Law, Political Science), Herrera (Political Science), Hirsch (History), Hollander (Jewish Studies), Johnson (Educational Leadership and Policy Analysis), Kaiser (Geography), Kepley (Communication Arts), Kydd (Political Science), Lapina (Slavic Languages), Livanos (Comparative Literature), Longinovic (Slavic Languages), McDonald (History), Michels (History), Miernowska (Slavic Languages), Neville (History), Radeloff (Forest and Wildlife Ecology), Reynolds (Slavic Languages), Schamiloglu (Languages and Cultures of Asia), Shevelenko (Slavic), Tishler (CREECA, Slavic Languages), Tumarkin (Slavic Languages), van de Water (Slavic Languages), Wink (History)

## RUSSIAN, EAST EUROPEAN AND CENTRAL ASIAN STUDIES, M.A.

The master of arts degree program in Russian, East European and Central Asian studies provides interdisciplinary area studies training for emerging professionals and future leaders in business, development, government, journalism, law, publishing, and the military. The curriculum is designed to promote a broad understanding of the cultural, political, economic, social, and historical factors that have shaped the development of societies in Eurasia, Russia, and Central and Eastern Europe; mastery in Russian, East European, or Central Asian languages at a level necessary for doing advanced research on and professional work in the region; and knowledge of methodological and analytical approaches of different

disciplines that will contribute to a better understanding of the region and will prepare students for conducting advanced research. The program requires both area studies and language training.

The M.A. program is designed to be completed in three semesters, but motivated students who enter with prior language study and commit to intensive summer coursework have the option of completing the course of study within 12 calendar months. Students will work closely with the M.A. advisor, who serves as their primary graduate studies advisor, to ensure that their course of study is both coherent and sufficiently interdisciplinary.

## FUNDING

Each year a faculty committee selects a limited number of deserving graduate students (in any field of study) for Foreign Language and Area Studies (FLAS) Fellowships. Applicants must be citizens or permanent residents of the United States and must demonstrate their commitment to the study of a language of Russia, Eastern Europe, or Central Asia, and to related area studies topics. Applications and supporting materials for the FLAS fellowship competition must be submitted by approximately February 15 each year. For more information and an application, see Foreign Language & Area Studies (FLAS) Fellowships (<http://flas.wisc.edu>).

Students interested in studying Polish may be eligible to apply for a Michael and Emily Lapinski fellowship ([http://slavic.lss.wisc.edu/new\\_web/?q=node/71](http://slavic.lss.wisc.edu/new_web/?q=node/71)), administered through the Department of Slavic Languages and Literature. The annual deadline is March 1. Please contact the Slavic department for more information.

CREECA also nominates eligible incoming graduate students in its M.A. program for the Advanced Opportunity Fellowship (for targeted students). To be considered for university funding, all application materials must be received by the early January deadline indicated on the CREECA M.A. application form.

A limited number of teaching assistantships and project assistantships may be available in CREECA and in specific departments that offer high-enrollment courses on REECAS. Information about these assistantships can be obtained by writing or calling CREECA and the respective departments. In addition to these opportunities, other fellowships and financial assistance are available outside CREECA. For further information, incoming graduate students should write directly to the appropriate department or organization.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits of coursework numbered 300 or above taken as a UW-Madison undergraduate student. Coursework earned five or more years prior to admission to a Master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## COURSES

In addition to language classes each term, students will be required to complete a minimum of 22 non-language (area studies) credits from the course list to be distributed as follows:

1. Seven courses in Russian, East European and Central Asian studies at or above the 300 level (21 credits). These courses must be distributed over at least three departments. At least 50% of credits applied towards the graduate degree credit requirement must be with courses designed for graduate work. Courses with the graduate level coursework attribute are identified and searchable in the University's Course Guide ([http://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.uP?pCm=view&pP\\_action=advancedSearch&pP\\_form-submit=true](http://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/detached/render.uP?pCm=view&pP_action=advancedSearch&pP_form-submit=true)).
2. At least 6 of these credits (two courses) must be graduate-level **seminars** (700 through 900 level). REECAS M.A. students are expected to use original language source material in their graduate seminar papers.
3. A 1-credit "Introduction to REECAS" module (SLAVIC 755 Topics in Slavic Literature). The course number of this module varies, depending on the home department of the faculty director of CREECA. Students are required to attend the weekly CREECA lecture series and to write four short essays based on the content of those lectures. Papers are read and evaluated by the CREECA director and associate director.
4. Students may elect to write a master's thesis, but this is not required. This 3-credit, faculty-supervised, independent research course could count toward the required 22 non-language credits, but could not take the place of a required graduate-level seminar. The master's thesis will demonstrate the student's ability to engage in original research in his or her chosen field, including the ability to use original-language material.

Language learning is an integral part of the program, and students will be required to enroll in language courses each term. Students already proficient in their main language will be expected to choose another Slavic or Central Eurasian language for the duration of their program. For degree completion, students must have a minimum of two years of university-level study (or the equivalent) of a regional language with at least three years of study strongly recommended. During the academic year, the program offers Czech, Finnish, Kazak, Persian, Polish, Russian, Bosnian/Croatian/Serbian, and Turkish (Turkish–Azeri).

Code	Title	Credits
<b>Agricultural and Applied Economics</b>		
A A E/ECON/ REAL EST/ URB R PL 306	The Real Estate Process	3
A A E/INTL ST 374	The Growth and Development of Nations in the Global Economy	3
A A E/ECON 474	Economic Problems of Developing Areas	3
<b>Anthropology</b>		
ANTHRO 330	Topics in Ethnology <sup>1</sup>	3-4
ANTHRO 369	Peoples and Cultures of Central and Eastern Europe	3-4
ANTHRO/JEWISH/ RELIG ST 372	Jews of Central and Eastern Europe	3-4
ANTHRO 606	Ethnicity, Nations, and Nationalism <sup>1</sup>	3-4
ANTHRO 677	Public Monuments and Symbols <sup>1</sup>	3
ANTHRO 690	Problems in Anthropology <sup>1</sup>	3-4
<b>Art History</b>		
ART HIST 310	Early Christian and Byzantine Art	3-4
ART HIST 351	20th Century Art in Europe	3-4
ART HIST 556	Proseminar in 20th Century European Art <sup>1</sup>	3
ART HIST 805	Seminar-Ancient Art and Architecture <sup>1</sup>	3
ART HIST 815	Seminar-Medieval Art <sup>1</sup>	3
ART HIST 856	Graduate Seminar in Twentieth Century European Art <sup>1</sup>	3
<b>Communication Arts</b>		
COM ARTS 352	Film History to 1960	3
COM ARTS 456	Russian and Soviet Film	3
COM ARTS 463	Avant-Garde Film	3
COM ARTS 958	Seminar in Film History <sup>1</sup>	2-3
<b>Economics</b>		
ECON/A A E/ REAL EST/ URB R PL 306	The Real Estate Process	3
ECON 364	Survey of International Economics	3-4
ECON 390	Contemporary Economic Issues <sup>1</sup>	3
ECON 467	International Industrial Organizations <sup>1</sup>	3-4
ECON/A A E 474	Economic Problems of Developing Areas <sup>1</sup>	3
ECON/SOC 663	Population and Society <sup>1</sup>	3
<b>Folklore</b>		

FOLKLORE/ LITTRANS 347	In Translation: Kalevala and Finnish Folk-Lore	3-4	HISTORY 753	Seminar-Comparative World History <sup>1</sup>	1-3
FOLKLORE/ RELIG ST 352	Shamanism	3	HISTORY/FRENCH/ GERMAN/POLI SCI/ SOC 804	Interdisciplinary Western European Area Studies Seminar <sup>1</sup>	3
FOLKLORE/ SCAND ST 443	Sami Culture, Yesterday and Today	4	HISTORY 849	Seminar-Topics in History of Imperial Russia, 1649-1917	1-3
FOLKLORE/ SLAVIC 444	Slavic and East European Folklore	3	HISTORY 850	Smr-Hist of the Soviet Union & Modern Hist of E Central Europe	1-3
FOLKLORE 460	Folk Epics <sup>1</sup>	3	HISTORY/LCA 851	Seminar on Ottoman and Middle East History	1-3
<b>Geography</b>			<b>International Business</b>		
GEOG 318	Introduction to Geopolitics	3	INTL BUS 365	Contemporary Topics <sup>1</sup>	1-3
GEOG 353	Russia and the NIS-Topical Analysis	3	INTL BUS/ REAL EST 430	International Real Estate <sup>1</sup>	3
GEOG 518	Power, Place, Identity <sup>1</sup>	3	INTL BUS/OTM 755	International Operations: Problems and Administration	3
GEOG 918	Seminar in Political Geography <sup>1</sup>	2-3	<b>Journalism and Mass Communication</b>		
<b>History</b>			JOURN 620	International Communication <sup>1</sup>	4
HISTORY/ MEDIÉVAL/ RELIG ST 309	The Crusades: Christianity and Islam	3-4	JOURN 621	Mass Communication in Developing Nations <sup>1</sup>	4
HISTORY/ MEDIÉVAL 313	Introduction to Byzantine History and Civilization	3-4	<b>Languages and Cultures of Asia</b>		
HISTORY/ MEDIÉVAL 314	Problems in Byzantine History and Civilization <sup>1</sup>	3-4	LCA 314	Literatures of Central Asia	3
HISTORY 332	Islam Reform and Revolution in Central Asia	3-4	LCA/RELIG ST 357	Literatures of Muslim Societies	3
HISTORY 357	The Second World War	3-4	LCA/AFRICAN/ RELIG ST 370	Islam: Religion and Culture	4
HISTORY 359	History of Europe Since 1945	3-4	LCA/GEN&WS/ HISTORY 472	Women in Turkish Society	3
HISTORY/ JEWISH 416	Eastern European Jews in the United States, 1880s-1930s	3-4	LCA 579	Fiction and Ethnography in Turkey	3
HISTORY 417	History of Russia	3-4	LCA 610	Proseminar: Introduction to Turkic Linguistics	3
HISTORY 418	History of Russia	3-4	LCA/RELIG ST/ SOC 614	Social Structures of Muslim Societies	3
HISTORY 419	History of Soviet Russia	3-4	LCA 615	Writing Travels <sup>1</sup>	3
HISTORY 420	Russian Social and Intellectual History	3-4	LCA 640	Proseminar in Central Asian History	3
HISTORY 424	The Soviet Union and the World, 1917-1991	3-4	LCA 850	Seminar in Turkic Studies	3
HISTORY 425	History of Poland and the Baltic Area	3-4	LCA/HISTORY 851	Seminar on Ottoman and Middle East History	1-3
HISTORY 434	American Foreign Relations, 1901 to the Present	3-4	<b>Law</b>		
HISTORY/ RELIG ST 439	Islamic History From the Origin of Islam to the Ottoman Empire	3-4	LAW 828	International Transactions	2-3
HISTORY 475	European Social History, 1914-Present	3-4	LAW 918	Selected Problems in International Law-Seminar <sup>1</sup>	2-3
HISTORY 500	Reading Seminar in History <sup>1</sup>	3	LAW 919	The Holocaust: Facts, Trials, Verdicts, Post-Verdicts	2
HISTORY/CURRIC/ JEWISH 515	Holocaust: History, Memory and Education	3	LAW 942	European Union Law	2-3
HISTORY/JEWISH/ RELIG ST 529	Intellectual and Religious History of European Jewry, 1648-1939	4	<b>Literature in Translation</b>		
HISTORY 540	Balkans and Middle East, 1700-1918: The Rise of National States	3-4	LITTRANS/ FOLKLORE 347	In Translation: Kalevala and Finnish Folk-Lore	3-4
HISTORY/HIST SCI/ MED HIST/ MEDIÉVAL/ S&A PHM 562	Byzantine Medicine and Pharmacy	3	LITTRANS 455	Modern Serbian and Croatian Literature in Translation	3
HISTORY 600	Advanced Seminar in History <sup>1</sup>	3			

LITTRANS 473	Polish Literature (in Translation) since 1863	3	SLAVIC 702	Eighteenth-Century Russian Literature	2
<b>Political Science</b>			SLAVIC 705	Special Topics in Russian Language/Linguistics	3
POLI SCI 334	Russian Politics	3-4	SLAVIC 755	Topics in Slavic Literature	1-3
POLI SCI 340	The European Union: Politics and Political Economy	3-4	SLAVIC 801	Slavic Critical Theory and Practice	3
POLI SCI 351	Politics of the World Economy	3-4	SLAVIC 802	The Structure of Russian	2
POLI SCI 401	Selected Topics in Political Science <sup>1</sup>	3-4	SLAVIC 803	Introduction to Old Church Slavonic and the History of Russian Literary Language	2
POLI SCI 421	The Challenge of Democratization	3-4	SLAVIC 804	Methods of Teaching Slavic Languages	2
POLI SCI/ INTL ST 439	The Comparative Study of Genocide	3-4	SLAVIC 820	College Teaching of Russian	1
POLI SCI 534	Socialism and Transitions to the Market	3-4	<b>Scandinavian Studies</b>		
POLI SCI 561	Radical Political Theory	3-4	SCAND ST/ FOLKLORE 443	Sami Culture, Yesterday and Today	4
POLI SCI/ RELIG ST 618	Political Islam	3-4	SCAND ST/ MEDIEVAL 444	Kalevala and Finnish Folk-Lore	4
POLI SCI 654	Politics of Revolution	3-4	<b>Sociology</b>		
POLI SCI 659	Politics and Society: Contemporary Eastern Europe	3-4	SOC 496	Topics in Sociology <sup>1</sup>	1-3
POLI SCI/FRENCH/ GERMAN/HISTORY/ SOC 804	Interdisciplinary Western European Area Studies Seminar	3	SOC/LCA/ RELIG ST 614	Social Structures of Muslim Societies	3
POLI SCI 814	Social Identities: Definition and Measurement <sup>1</sup>	3	SOC 621	Class, State and Ideology: an Introduction to Marxist Social Science <sup>1</sup>	3
POLI SCI 854	Nationalism and Ethnic Conflict	3	SOC 633	Social Stratification <sup>1</sup>	3
POLI SCI 948	Seminar: Topics in Comparative Politics <sup>1</sup>	3	SOC/FRENCH/ GERMAN/HISTORY/ POLI SCI 804	Interdisciplinary Western European Area Studies Seminar <sup>1</sup>	3
POLI SCI 949	Seminar-Post Communist Politics	3	SOC/C&E SOC 929	Seminar: Class Analysis and Historical Change	3
<b>Slavic Languages</b>			<b>Theatre and Drama</b>		
SLAVIC 302	Zarys historii literatury polskiej	3	THEATRE/ SLAVIC 532	History of Russian Theatre	3
SLAVIC/ RELIG ST 325	Eastern Christianity/Russian Orthodoxy in a Global Context	3	THEATRE 911	Seminar-Problems in Theatre and Drama <sup>1</sup>	2-3
SLAVIC 342	Uvod u srpsku i hrvatsku literaturu	3	<sup>1</sup> When topic is Russia, Eastern Europe, or Central Asia.		
SLAVIC 350	Special Topics in Russian Language, Literature, and Culture	3	<b>ADMISSIONS</b>		
SLAVIC 405	Women in Russian Literature	3-4	Students entering the master's program must have a bachelor's degree from an accredited institution and provide evidence of academic achievement and intellectual ability, including a minimum total grade point average of 3.0 (on a 4.0 scale) and a 3.4 in related area courses, letters of recommendation, and strong scores on the Graduate Record Exam (GRE). There is no minimum admission requirement for language, but students are strongly advised to complete two years of area language study before entering the program.		
SLAVIC 420	Chekhov	3-4	Applicants for admission to the M.A. degree program in Russian, East European and Central Asian studies should submit an online application. The following materials are required: statement of purpose, official transcripts from all postsecondary institutions attended, three letters of recommendation, Graduate Record Exam (GRE) scores, language questionnaire, and application for university fellowships for incoming students. Speakers of English as a second language must submit Test		
SLAVIC 421	Gogol	3-4			
SLAVIC 422	Dostoevsky	3-4			
SLAVIC 424	Tolstoy	3-4			
SLAVIC 433	History of Russian Culture	3			
SLAVIC 434	Contemporary Russian Culture	3			
SLAVIC 439	Russia Today in Literature and Film	4			
SLAVIC 440	Soviet Literature	3-4			
SLAVIC 449	Istorija srpske i hrvatske literature	3			
SLAVIC 454	Moderna srpska i hrvatska literatura	3			
SLAVIC 470	Historia literatury polskiej do roku 1863	3			
SLAVIC 472	Historia literatury polskiej po roku 1863	3			
SLAVIC/ THEATRE 532	History of Russian Theatre	3			
SLAVIC 701	Survey of Old Russian Literature	2			



of English as a Foreign Language (TOEFL), or International English Language Testing System (IELTS) scores as well.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

Students who complete the M.A. in Russian, East European, and Central Asian studies (REECAS) in good standing should demonstrate an understanding of the cultural, political, economic, social, and historical factors that have shaped the development of societies in Eurasia, Russia, and East and Central Europe.

- Students should be able to articulate, critique, and/or elaborate the theories, research methods, and approaches to inquiry in one or more of the disciplines represented in the interdisciplinary field of Russian, East European, and Central Asian studies (REECAS).
- Students should be able to identify sources and assemble evidence pertaining to questions or challenges in REECAS.
- Students should demonstrate an understanding of Russian, East European, and Central Asian studies in a historical, social, or global context.
- Students should select and utilize appropriate methodologies and practices in one or more of the disciplines represented in the interdisciplinary field of REECAS.
- Students should evaluate and synthesize information pertaining to questions or challenges in REECAS and should communicate clearly in written and spoken work in ways appropriate to REECAS.

### PROFESSIONAL CONDUCT LEARNING GOALS

- Students should recognize and apply principles of ethical and professional conduct in the context of Russian, East European, and Central Asian studies.

### ADDITIONAL LEARNING GOALS

- Language proficiency: Students will develop speaking, listening, writing, and reading skills in one or more of the languages of Russia, East and Central Europe, and Central Eurasia, and integrate these skills to communicate in a variety of social and academic situations.

## PEOPLE

**Faculty:** Professors Gerber (chair) (Sociology), Belodubrovskaya (Communication Arts), Bethea (Slavic Languages), Brenner (Jewish Studies), Buenger (Art History), Chamberlain (History), Ciancia (History), Dale (Art History), Danaher (Slavic Languages), Derin (Languages and Cultures of Asia), Dolinin (Slavic Languages), DuBois (Scandinavian Studies), Evans-Romaine (Slavic Languages), Filipowicz (Slavic Languages), Gehlbach (Political Science), Hendley (Law, Political Science), Herrera (Political Science), Hirsch (History), Hollander (Jewish Studies), Johnson (Educational Leadership and Policy Analysis), Kaiser (Geography), Kepley (Communication Arts), Kydd (Political Science), Lapina (Slavic Languages), Livanos (Comparative Literature), Longinovic (Slavic Languages), McDonald (History), Michels (History), Miernowska (Slavic Languages), Neville (History), Radeloff (Forest and Wildlife Ecology), Reynolds (Slavic Languages), Schamiloglu (Languages and Cultures of Asia), Shevelenko (Slavic), Tishler (CREECA,

Slavic Languages), Tumarkin (Slavic Languages), van de Water (Slavic Languages), Wink (History)

## SOUTHEAST ASIAN STUDIES, DOCTORAL MINOR

The doctoral minor in Southeast Asian studies is offered to students who are enrolled in a doctoral program at the university and are interested in focusing their disciplinary program on Southeast Asia. Students interested in obtaining this minor should first consult with their disciplinary adviser to clarify the type of minor required and then consult with the center's associate director, who serves as the advisor for the minor in Southeast Asian studies.

## PEOPLE

**Faculty:** Professors Bowie (Anthropology), Cowell (African Languages & Literature), Coxhead (Agricultural & Applied Economics), Gade (Nelson Institute for Environmental Studies), Gunther (Journalism & Mass Communications), Hansen (center director) (History), Macken (Linguistics), A. McCoy (History), Olds (Geography), Rafferty (Asian Languages & Cultures), Sidel (Law), Winichakul (History), Zhou (Anthropology); Associate Professors Nobles (Sociology); Assistant Professors Baird (Geography), Choy (Dance/Asian American Studies), Ho (Curriculum and Instruction/Education), Kim (Anthropology); Faculty Associates Barnard (Asian Languages & Cultures), Cullinane (History/Southeast Asian Studies), M. McCoy (Communication Arts/Southeast Asian Studies); Lecturers Chanprasert-Elbow (Asian Languages & Cultures), Dinh (Asian Languages & Cultures), Lee (Asian Languages & Cultures), Zamar (Asian Languages & Cultures); Librarian Ashmun (Southeast Asia Collection, Memorial Library)

## SOUTHEAST ASIAN STUDIES, GRADUATE/PROFESSIONAL CERTIFICATE

## REQUIREMENTS

The graduate/professional certificate in Southeast Asian studies is awarded to graduate students in other degree programs who are interested in documenting their advanced training in Southeast Asian studies. It requires the completion of 20 credits from the Southeast Asian studies core courses, approved by the center's director. Doctoral students may not earn both the doctoral minor and graduate/professional certificate in Southeast Asian studies.

## PEOPLE

**Faculty:** Professors Bowie (Anthropology), Cowell (African Languages & Literature), Coxhead (Agricultural & Applied Economics), Gade (Nelson Institute for Environmental Studies), Gunther (Journalism & Mass Communications), Hansen (center director) (History), Macken (Linguistics), A. McCoy (History), Olds (Geography), Rafferty (Asian Languages & Cultures), Sidel (Law), Winichakul (History), Zhou (Anthropology); Associate Professors Nobles (Sociology); Assistant

Professors Baird (Geography), Choy (Dance/Asian American Studies), Ho (Curriculum and Instruction/Education), Kim (Anthropology); Faculty Associates Barnard (Asian Languages & Cultures), Cullinane (History/Southeast Asian Studies), M. McCoy (Communication Arts/Southeast Asian Studies); Lecturers Chanprasert-Elbow (Asian Languages & Cultures), Dinh (Asian Languages & Cultures), Lee (Asian Languages & Cultures, Zamar (Asian Languages & Cultures); Librarian Ashmun (Southeast Asia Collection, Memorial Library)

## SOUTHEAST ASIAN STUDIES, M.A.

The M.A. degree in Southeast Asian studies is an interdisciplinary program designed to meet the unique needs of two broad groups of students: those seeking certification of area expertise en route to a disciplinary doctoral degree and those seeking a terminal M.A. en route to a wide range of careers in Southeast Asia, including employment in business, journalism, and various government and international organizations. The program requires two years of coursework (or the equivalent) in a Southeast Asian language and 30 graduate credits in Southeast Asian studies courses.

The Center for Southeast Asian Studies administers a formal graduate program in Southeast Asian studies and facilitates interdisciplinary study on Southeast Asia in intercollege, professional, and other degree programs throughout the university. The Southeast Asian studies program provides students with the opportunity to concentrate their study of this dynamic region in several disciplines and professional areas: anthropology, communications (journalism), development, education, economics, environmental studies, geography, history, linguistics, literature, music and dance (performing arts), political science, public health, religion, sociology, and urban and regional planning, as well as natural resources, business, and law, and public policy. Faculty expertise and library holdings are particularly strong for in-depth study of Cambodia, Indonesia, Laos, Philippines, Thailand, and Vietnam. The goal of the program is to provide students with a strong area and language background on Southeast Asia and to prepare them for a range of academic and professional careers.

Language study is a critical component in area studies, and the center encourages students to develop proficiency in at least one Southeast Asian language. During the academic year, instruction is offered through the Department of Asian Languages and Cultures in five Southeast Asian languages: Filipino (Tagalog), Hmong, Indonesian, Thai, and Vietnamese. Each language is offered at two or more levels of instruction, with advanced readings and literature courses available in Indonesian. The center also facilitates participation in the Southeast Asian Studies Summer Institute (SEASSI), which provides instruction during the summers at multiple levels in eight languages of the region: Burmese, Filipino, Hmong, Indonesian/Malaysian, Javanese, Khmer, Lao, Thai, and Vietnamese, and depending on enrollments, Javanese. Though SEASSI is hosted by the center and based in Madison, it is open to students from anywhere. More information is available on the SEASSI website (<http://seassi.wisc.edu>).

## COURSES

Interdisciplinary courses may be taken from many departments. Courses must contain a minimum of 25 percent Southeast Asia content to be counted for all the graduate programs. For a more complete and up-to-date listing of currently available courses, contact the Center for Southeast Asian Studies. Because the instructors and contents of many courses may change over time (especially for graduate level topics

courses and seminars), students should consult the Center for Southeast Asian Studies for confirmation on whether a course may count for the M.A. degree, the graduate certificate, or the doctoral minor.

## FUNDING

The center offers two graduate-level fellowships each year: Foreign Language and Area Studies (FLAS) fellowships, funded by the U.S. Department of Education (Title VI); and Center Fellowships, funded by the center's Mellon endowment. Both fellowships provide full tuition and a monthly stipend and are awarded to deserving graduate students (in any discipline) with a strong commitment to the study of Southeast Asia. The center also provides Field Research Grants to be used to support doctoral dissertation and pre-dissertation research on Southeast Asia. Applicants for FLAS fellowships must be citizens or permanent residents of the U.S. and must apply to study one of the languages offered during the academic year: Filipino, Hmong, Indonesian, Thai, or Vietnamese. Center fellowships are generally awarded by semester and are open to all graduate students committed to the study of Southeast Asia. Field Research Grants can be awarded to graduate students in any field of study. Applications for FLAS, Center Fellowships, and Field Research Grants can be obtained directly from the center's office (or downloaded from the website) and must be submitted, along with all supporting materials, by the first week of February each year. The center also nominates eligible incoming graduate students in its M.A. program for two university-wide competitions: Advanced Opportunity Fellowships (for minority students) and University Fellowships (for students with outstanding academic records). In addition to these opportunities, other fellowships and financial assistance are available outside the center. For further information, incoming graduate students should write directly to the appropriate department and to the Office of Student Financial Aid. For additional information on the fellowships offered by the center, consult the center's website (<http://seassi.wisc.edu>).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the required credits (15 credits out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, student are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

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The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their

absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Applicants for admission to the M.A. degree program in Southeast Asian Studies should submit the online application on the Graduate School website. The following materials are required and should be submitted to the center: statement of purpose, official transcripts of all undergraduate and graduate study, three references, and Graduate Record Exam (GRE) scores for U.S. citizens; most international students are also required to submit Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) scores (for recommended test scores, see the Graduate School website).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate knowledge of one or more regions of Southeast Asia, focusing on a research question(s), problem or case study situated within a broader analytic framework and knowledge of the cultures, religions, history, anthropology, geography, economics, literature, and/or languages within scholarship on Southeast Asia.
- Demonstrate proficiency in reading, speaking, and listening in one or more Southeast Asian languages, at least at the proficiency level of four semesters.
- Analyze and synthesize information and ideas within the context of interdisciplinary Southeast Asian studies.
- Understand, respond to, and construct arguments across disciplines relating to the study of Southeast Asia.
- Apply their knowledge to solutions of intellectual as well as practical problems.

### PROFESSIONAL CONDUCT

- Recognize and apply principles of professional and ethical conduct.

### ADDITIONAL LEARNING GOALS

- Conduct academic research using an appropriate range of social scientific and/or humanistic sources, methodologies, and critical theories.
- Communicate effectively in writing and orally.

## PEOPLE

**Faculty:** Professors Bowie (Anthropology), Cowell (African Languages & Literature), Coxhead (Agricultural & Applied Economics), Gade (Nelson Institute for Environmental Studies), Gunther (Journalism & Mass Communications), Hansen (center director) (History), Macken (Linguistics), A. McCoy (History), Olds (Geography), Rafferty (Asian Languages & Cultures), Sidel (Law), Winichakul (History), Zhou (Anthropology); Associate Professors Nobles (Sociology); Assistant Professors Baird (Geography), Choy (Dance/Asian American Studies), Ho (Curriculum and Instruction/Education), Kim (Anthropology); Faculty

Associates Barnard (Asian Languages & Cultures), Cullinane (History/Southeast Asian Studies), M. McCoy (Communication Arts/Southeast Asian Studies); Lecturers Chanprasert-Elbow (Asian Languages & Cultures), Dinh (Asian Languages & Cultures), Lee (Asian Languages & Cultures, Zamar (Asian Languages & Cultures); Librarian Ashmun (Southeast Asia Collection, Memorial Library)

## INTEGRATIVE BIOLOGY

**Administrative Unit:** Integrative Biology

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., M.S., Ph.D.

**Degrees Offered:** M.A. in Zoology; M.S. in Freshwater and Marine Sciences; M.S. in Zoology; Ph.D. in Freshwater and Marine Sciences; Ph.D. in Zoology

**Minors and Certificates:** Doctoral Minor in Freshwater and Marine Sciences; Doctoral Minor in Zoology

The Department of Integrative Biology offers graduate work leading to the master of arts or the master of science and the doctor of philosophy in zoology, and the master of science or doctor of philosophy in freshwater and marine sciences. Facilities and staff are available for advanced study in a wide variety of zoological fields including aquatic and terrestrial ecology, conservation biology, cell/molecular/developmental and neurobiology, endocrinology, ethology, genetics, evolution and systematics, comparative physiology, and physiological ecology.

In addition to a broad range of well-equipped laboratories, research facilities include advanced microscopy facilities (<http://www.microscopy.wisc.edu>), limnological laboratories on campus (Lake Mendota) and in northern Wisconsin (Trout Lake), the University Arboretum, the Zoological Museum and a Molecular Systematics Laboratory.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE PROFESSIONAL/CERTIFICATES

- Freshwater Marine Science, Doctoral Minor (p. 445)
- Freshwater Marine Science, M.S. (p. 445)
- Freshwater Marine Science, Ph.D. (p. 447)
- Zoology, Doctoral Minor (p. 449)
- Zoology, M.A. (p. 449)
- Zoology, M.S. (p. 451)
- Zoology, Ph.D. (p. 453)

## PEOPLE

**Faculty:** Professors: Hardin (chair), Bement, Blair, Carpenter, Engels, Epstein, Fernandez, Gammie, Goldberg, Halloran, Ives, Karasov, Lee, Lindroth, Marler, Porter, Ritters, Stanley, Stretton, Strier, Turner, Vander Zanden; Associate Professors: Amann, Auger, Bleiweiss, Brunet, Currie, Damschen, Gratton, Grinblat, Hawks, Lee, Orrock; Assistant Professors: Coen, McIntyre, Payseur, Peery, Pool, Sharma, Wolman

## FRESHWATER MARINE SCIENCE, DOCTORAL MINOR

Students working toward a Ph.D. degree with a major in another department may elect to minor in freshwater and marine sciences. A minor program of at least 12 credits, developed individually for each student, should strike a reasonable balance of physical and biological courses and include at least one semester of the limnology and marine

sciences seminar. The proposed minor must be approved by the limnology and marine sciences graduate committee.

## ADMISSIONS

Applicants to the program typically have at least one year of college-level biology, chemistry, physics, and calculus. In addition, applicants should highlight their substantive experiences and career goals in freshwater and marine sciences. Prospective students make direct contact with potential faculty advisors. Admission depends upon finding a match between the skills and interests of the applicant and the needs of a suitable faculty mentor.

## PEOPLE

**Faculty:** Stanley (chair) (Integrative Biology), Bahr (Geoscience), Block (Civil and Environmental Engineering), Cardiff (Geoscience), Carpenter (Integrative Biology), Desai (Atmospheric and Oceanic Sciences), Fratta (Civil and Environmental Engineering), Ginder-Vogel (Civil and Environmental Engineering), Goldberg (Pathobiological Sciences), Graham (Botany), Gratton (Entomology), Hotchkiss (Botany), Hurley (Civil and Environmental Engineering), Krysan (Horticulture), Kucharik (Agronomy), Lee (Integrative Biology), Liu (Atmospheric and Oceanic Sciences), Loheide (Civil and Environmental Engineering), McIntyre (Integrative Biology), McKinley (Atmospheric and Oceanic Sciences), McMahon (Civil and Environmental Engineering), Noguera (Civil and Environmental Engineering), Potter (Civil and Environmental Engineering), Remucal (Civil and Environmental Engineering), Vander Zanden (Integrative Biology), Wu (Civil and Environmental Engineering)

## FRESHWATER MARINE SCIENCE, M.S.

The program offers curricula leading to the master of science and doctor of philosophy degrees or a doctoral minor in freshwater and marine sciences. Interdisciplinary in nature, each individualized program of study provides graduate training in aquatic sciences and integrates related sciences. Students enrolled in the program are advised by faculty in several departments in the College of Letters & Science, the College of Engineering, the College of Agricultural and Life Sciences, and the School of Veterinary Medicine.

UW–Madison is recognized worldwide as a leader in the field of limnology and aquatic ecology. The limnology and marine sciences program began in 1962 as the oceanography and limnology program. The program combines research and teaching from several fields and departments to develop a greater understanding of aquatic systems—their origins, inhabitants, phenomena, and impact on human life.

This graduate program emphasizes limnological studies and is based on the premise that limnology and marine sciences are integrated fields requiring a broad base in the fundamental disciplines. Students may specialize in limnology or in marine sciences, or they may focus on processes common to both environments.

Facilities for freshwater and marine research and instruction in the biological, chemical, and physical areas of limnology and marine sciences are available at UW–Madison through the Center for Limnology, the Water Science & Engineering Laboratory, and the departments of

faculty participating in the program. The Center for Limnology also maintains a year-round laboratory at Trout Lake. This facility is a well-equipped biological field station in the Northern Highlands lake district of Wisconsin. Several research vessels are available for research on the Great Lakes. Ships belonging to other institutions are used for oceanographic field research.

Study plans are individually tailored for each student by a guidance and evaluation committee composed of at least three faculty members including the major professor, another professor from the major field of interest, and a third from another discipline. At least two must be from the limnology and marine sciences faculty, one from the biological sciences, and one from the physical sciences. The committee guides the student in developing study plans, research, and career goals.

## FUNDING

Various types of financial-assistance programs are available to qualified students in the form of research assistantships, teaching assistantships, fellowships, and special grants. Decisions regarding financial support are based on letters of recommendation, grades, Graduate Record Exam (GRE) scores, and, for research assistantships, the matching of interests or experience of the applicant to the research program. For research assistantships, the applicant's interests and experience must match the needs of the funding project. Students are encouraged to seek outside funding.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available thesis, and report tracks

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students may be allowed to count credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, 7 credits from a UW–Madison undergraduate degree are allowed to count toward the degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, 15 credits taken as a UW–Madison Special Student are allowed toward minimum coursework requirements. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Students are required to develop a plan of courses with their advisor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

Students must earn a B or above in all courses counting toward degree requirements.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR / COMMITTEE

All incoming students are assigned an advisor. Students are expected to meet with their advisor on a regular basis.

### ASSESSMENTS AND EXAMINATIONS

The thesis track requires a formal thesis; the report track requires a comprehensive report.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Applicants to the program typically have at least one year of college-level biology, chemistry, physics, and calculus. In addition, applicants should highlight their substantive experiences and career goals in freshwater and marine sciences. Prospective students make direct contact with potential faculty advisors. Admission depends upon finding a match between the skills and interests of the applicant and the needs of a suitable faculty mentor.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulate, critique, or elaborate the theories, research methods, and approaches to inquiry or practice in the relevant area of freshwater and/or marine sciences.
- Identify sources and assembles evidence pertaining to questions or challenges in the relevant research field(s).
- Understand the historical or global context of freshwater and/or marine sciences.
- Select and/or use appropriate methodologies and practices.
- Evaluate or synthesize information pertaining to questions or challenges in the students' area of specialization within the freshwater and marine sciences.
- Communicate clearly in ways appropriate to the field of study.

### PROFESSIONAL CONDUCT

- Recognize and applies principles of ethical conduct.

## PEOPLE

**Faculty:** Stanley (chair) (Integrative Biology), Bahr (Geoscience), Block (Civil and Environmental Engineering), Cardiff (Geoscience), Carpenter (Integrative Biology), Desai (Atmospheric and Oceanic Sciences), Fratta (Civil and Environmental Engineering), Ginder-Vogel (Civil and Environmental Engineering), Goldberg (Pathobiological Sciences), Graham (Botany), Gratton (Entomology), Hotchkiss (Botany), Hurley (Civil and Environmental Engineering), Krysan (Horticulture), Kucharik (Agronomy), Lee (Integrative Biology), Liu (Atmospheric and Oceanic Sciences), Loheide (Civil and Environmental Engineering), McIntyre (Integrative Biology), McKinley (Atmospheric and Oceanic Sciences), McMahon (Civil and Environmental Engineering), Noguera (Civil and Environmental Engineering), Potter (Civil and Environmental Engineering), Remucal (Civil and Environmental Engineering), Vander Zanden (Integrative Biology), Wu (Civil and Environmental Engineering)

## FRESHWATER MARINE SCIENCE, PH.D.

The program offers curricula leading to the master of science and doctor of philosophy degrees or a doctoral minor in freshwater and marine sciences. Interdisciplinary in nature, each individualized program of study provides graduate training in aquatic sciences and integrates related sciences. Students enrolled in the program are advised by faculty in several departments in the College of Letters & Science, the College of

Engineering, the College of Agricultural and Life Sciences, and the School of Veterinary Medicine.

UW–Madison is recognized worldwide as a leader in the field of limnology and aquatic ecology. The limnology and marine sciences program began in 1962 as the oceanography and limnology program. The program combines research and teaching from several fields and departments to develop a greater understanding of aquatic systems—their origins, inhabitants, phenomena, and impact on human life.

This graduate program emphasizes limnological studies and is based on the premise that limnology and marine sciences are integrated fields requiring a broad base in the fundamental disciplines. Students may specialize in limnology or in marine sciences, or they may focus on processes common to both environments.

Facilities for freshwater and marine research and instruction in the biological, chemical, and physical areas of limnology and marine sciences are available at UW–Madison through the Center for Limnology, the Water Science & Engineering Laboratory, and the departments of faculty participating in the program. The Center for Limnology also maintains a year-round laboratory at Trout Lake. This facility is a well-equipped biological field station in the Northern Highlands lake district of Wisconsin. Several research vessels are available for research on the Great Lakes. Ships belonging to other institutions are used for oceanographic field research.

Study plans are individually tailored for each student by a guidance and evaluation committee composed of at least three faculty members including the major professor, another professor from the major field of interest, and a third from another discipline. At least two must be from the limnology and marine sciences faculty, one from the biological sciences, and one from the physical sciences. The committee guides the student in developing study plans, research, and career goals.

All Ph.D. candidates are expected to obtain a broad background in aquatic sciences and depth in their research area. The background may include biology, chemistry, data science, geology, physics, or other related fields. The major, by nature of the program, includes advanced courses in several subdisciplines in freshwater and marine sciences. The minor may be used to obtain tools of research, focus in greater depth on a single discipline within freshwater and marine sciences, or open additional areas related to the field, such as the social sciences.

## FUNDING

Various types of financial-assistance programs are available to qualified students in the form of research assistantships, teaching assistantships, fellowships, and special grants. Decisions regarding financial support are based on letters of recommendation, grades, Graduate Record Exam (GRE) scores, and, for research assistantships, the matching of interests or experience of the applicant to the research program. For research assistantships, the applicant's interests and experience must match the needs of the funding project. Students are encouraged to seek outside funding.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students may be to count credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, 7 credits from a UW–Madison undergraduate degree are allowed to count toward the degree. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, 15 credits taken as a UW–Madison Special Student are allowed toward minimum coursework requirements. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Students are required to develop a plan of courses with their advisor.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

Students must earn a B or above in all courses counting toward degree requirements.

### PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of enrollment the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

### ADVISOR / COMMITTEE

All incoming students are assigned an advisor. Students are expected to meet with their advisor on a regular basis.

### ASSESSMENTS AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary exam by the end of their fifth semester of study in the Ph.D. program. A final oral exam of the doctoral dissertation is required. Deposit of the doctoral dissertation in the Graduate School is required.

### TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

### LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Applicants to the program typically have at least one year of college-level biology, chemistry, physics, and calculus. In addition, applicants should highlight their substantive experiences and career goals in freshwater and marine sciences. Prospective students make direct contact with potential faculty advisors. Admission depends upon finding a match between the skills and interests of the applicant and the needs of a suitable faculty mentor.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Regardless of whether an individual is awarded a master's degree, the doctoral level learning goals are inclusive of the master's level learning goals.
- Articulate challenges, frontiers, and limits with respect to theory, knowledge or practice within relevant areas of freshwater and marine sciences.
- Formulate ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the students' relevant research field(s).
- Conduct research that makes a substantive contribution.
- Demonstrate breadth within freshwater and marine sciences.



- Communicate complex or ambiguous ideas in a clear and understandable manner.
- Consider the implications of the discipline to broader societal concerns.

## PROFESSIONAL CONDUCT

- Foster ethical conduct and professional guidelines.

## PEOPLE

**Faculty:** Stanley (chair) (Integrative Biology), Bahr (Geoscience), Block (Civil and Environmental Engineering), Cardiff (Geoscience), Carpenter (Integrative Biology), Desai (Atmospheric and Oceanic Sciences), Fratta (Civil and Environmental Engineering), Ginder-Vogel (Civil and Environmental Engineering), Goldberg (Pathobiological Sciences), Graham (Botany), Gratton (Entomology), Hotchkiss (Botany), Hurley (Civil and Environmental Engineering), Krysan (Horticulture), Kucharik (Agronomy), Lee (Integrative Biology), Liu (Atmospheric and Oceanic Sciences), Loheide (Civil and Environmental Engineering), McIntyre (Integrative Biology), McKinley (Atmospheric and Oceanic Sciences), McMahon (Civil and Environmental Engineering), Noguera (Civil and Environmental Engineering), Potter (Civil and Environmental Engineering), Remucal (Civil and Environmental Engineering), Vander Zanden (Integrative Biology), Wu (Civil and Environmental Engineering)

## ZOOLOGY, DOCTORAL MINOR

### REQUIREMENTS

Graduate candidates who elect zoology as a minor subject must fulfill the course requirements specified by the minor professor or the graduate advisory committee.

## PEOPLE

**Faculty:** Professors: Hardin (chair), Bement, Blair, Carpenter, Engels, Epstein, Fernandez, Gammie, Goldberg, Halloran, Ives, Karasov, Lee, Lindroth, Marler, Porter, Ritters, Stanley, Stretton, Strier, Turner, Vander Zanden; Associate Professors: Amann, Auger, Bleiweiss, Brunet, Currie, Damschen, Gratton, Grinblat, Hawks, Lee, Orrock; Assistant Professors: Coen, McIntyre, Payseur, Peery, Pool, Sharma, Wolman

## ZOOLOGY, M.A.

The Department of Integrative Biology offers graduate work leading to the master of arts or the master of science and the doctor of philosophy in zoology. Facilities and staff are available for advanced study in a wide variety of zoological fields including aquatic and terrestrial ecology, conservation biology, cell/molecular/developmental and neurobiology, endocrinology, ethology, genetics, evolution and systematics, comparative physiology, and physiological ecology.

In addition to a broad range of well-equipped laboratories, research facilities include advanced microscopy facilities (<http://www.microscopy.wisc.edu>), limnological laboratories on campus (Lake Mendota) and in northern Wisconsin (Trout Lake), the University

Arboretum, the Zoological Museum and a Molecular Systematics Laboratory.

## FUNDING

Financial support may be provided through a limited number of teaching and research assistantships and by federal, industrial, and privately sponsored fellowships and traineeships. Graduate student support is available to all accepted graduate students and will be determined before arrival on campus.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

16 credits

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS:

With committee approval, students are allowed to count no more than 14 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements. Typically committees will choose to cap coursework from another institution at a lower level than 14 credits, but this is a committee decision to be made on a case by case basis.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With committee approval, students are allowed up to 7 credits numbered 300 or above from their UW-Madison undergraduate career to fulfill graduate requirements. Typically committees will choose to cap coursework allowed from undergraduate careers at a lower level than the 7 allowed, but this is a committee decision to be made on a case by case basis.

## **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With committee approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements. Typically committee members will choose to cap the number of coursework taken as a University Special student at a lower level, but this is a committee decision to be made on a case-by-case basis.

## **CREDITS PER TERM ALLOWED**

15 credits

## **PROGRAM-SPECIFIC COURSES REQUIRED**

Required coursework is determined for each student individually by the student's advisory committee.

## **OVERALL GRADUATE GPA REQUIREMENT**

3.00

## **OTHER GRADE REQUIREMENTS**

An average record of B or better in all work taken as a Graduate Student is required by the Department of Zoology (grades of P and S are for this purpose considered to be satisfactory at the B level; grades of Incomplete are considered for this purpose to be unsatisfactory if they are not removed during the following semester of residence).

## **PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

At the department level, the chair, in consultation with the major professor and advisory committee, may determine that the student's progress is unsatisfactory and so report to the faculty in closed session. If, after faculty review, the chair's determination is considered justified, the student will be notified that tenure in the department is to be terminated at the end of the semester. If the student disagrees with the judgment of the faculty, it shall be the student's responsibility to show cause as to why the faculty's opinion is not justified. Any student who is judged wanting in sufficient progress will be granted one additional probationary semester, at the end of which continuation in Graduate School will be denied unless by extraordinary initiative and application the student is able to persuade the faculty to reverse their decision.

## **ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor and a committee. To ensure that students are making satisfactory progress toward a degree, every student is required to meet with the advisor and committee annually to review progress. If a progress report has not been filed by May 1, a hold will be placed on student course registration.

## **ASSESSMENTS AND EXAMINATIONS**

In the second semester of the first year, students must complete the Certification of Candidate for a Master's Degree.

Typically the defense of the master's degree occurs no later than the end of the student's sixth semester. A master's degree warrant must be requested from the department prior to the defense.

## **TIME CONSTRAINTS**

It is up to the student's committee to determine whether or not a student who has been absent for five or more consecutive years will lose the credits earned before the absence; that coursework may not count toward Graduate School credit requirements.

## **LANGUAGE REQUIREMENTS**

To be determined by the advisory committee.

## **ADMISSIONS**

The department will accept applicants who have an adequate background for advanced work in one or more of the subdisciplines listed above and for whom a faculty member is willing to serve as major professor. In addition to the Graduate School application, all applicants must submit GRE scores, at least 3 letters of recommendation, a personal statement including areas of research interest and the names of prospective faculty advisors, a CV/resume, official transcripts from all undergraduate and graduate schools attended, and a calculation of the undergraduate GPA for the last 60 hours of undergraduate work. See the admissions page on the zoology website for more specific instructions regarding application requirements. The annual admission application deadline is December 1st.

The department faculty strongly believes that graduate education should be distinguished from undergraduate education in recognition of individuality and emphasis on responsibility in graduate students. This philosophy requires flexibility and is not well served by the imposition of many formal requirements to be met by all students. Rather, more emphasis is placed on the role of advisory committees in devising programs of breadth and depth appropriate for individual students with due regard to areas outside of biology which are important for the student's effectiveness in the chosen field.

## **LEARNING OUTCOMES**

### **KNOWLEDGE AND SKILLS**

#### **KNOWLEDGE**

- Master fundamental skills in at least one of the broad subject areas represented in the Department of Zoology.
- Students will demonstrate understanding of major current and past theories, research findings, and methodologies and techniques in their area of concentration.
- Students will develop critical thinking skills. They will retrieve and examine scientific literature, evaluate evidence for and against hypotheses, identify knowledge gaps, strengths and weaknesses in existing literature, synthesize knowledge, and develop conclusions.

#### **RESEARCH**

- Students will complete an original research project in one of the broad subject areas represented in the Department of Zoology.
- Students will retrieve, evaluate, and interpret professional scientific literature and use this information to select and/or use the most appropriate methods for their own research project.

- Students will conduct research, analyze, and interpret resulting data. Students will prepare a thesis or research report describing their research project.

## COMMUNICATION

- Effectively communicate in writing and orally.
- Students will write a clear and concise research report.
- Students will present research articulately and informatively. Students will have opportunities to engage in public outreach and education.

## PROFESSIONAL CONDUCT

### ETHICAL CONDUCT

- Students will have an understanding of professional and ethical responsibility.
- Students will be trained to use scientific rigor when designing experiments, collecting and analyzing data, interpreting and reporting results.
- Students will be trained in the ethics of publishing.
- Students will know and adhere to laws, regulations, needed permits and licenses, occupational health and safety standards.

### CAREER PREPARATION

- Students will be provided with diverse training that will prepare them for a range of flexible and sustainable careers (e.g., academia, industry, government, science policy and administration, science commerce, science writing, law, and science education and outreach at all levels).
- Students will develop broadly applicable skills in critical thinking and problem solving.
- Students will have opportunities for teamwork, communication skills, and collaborations.

## PEOPLE

**Faculty:** Professors: Hardin (chair), Bement, Blair, Carpenter, Engels, Epstein, Fernandez, Gammie, Goldberg, Halloran, Ives, Karasov, Lee, Lindroth, Marler, Porter, Ritters, Stanley, Stretton, Strier, Turner, Vander Zanden; Associate Professors: Amann, Auger, Bleiweiss, Brunet, Currie, Damschen, Gratton, Grinblat, Hawks, Lee, Orrock; Assistant Professors: Coen, McIntyre, Payseur, Peery, Pool, Sharma, Wolman

## ZOOLOGY, M.S.

The Department of Integrative Biology offers graduate work leading to the master of arts or the master of science and the doctor of philosophy in zoology. Facilities and staff are available for advanced study in a wide variety of zoological fields including aquatic and terrestrial ecology, conservation biology, cell/molecular/developmental and neurobiology, endocrinology, ethology, genetics, evolution and systematics, comparative physiology, and physiological ecology.

In addition to a broad range of well-equipped laboratories, research facilities include advanced microscopy facilities (<http://www.microscopy.wisc.edu>), limnological laboratories on campus (Lake Mendota) and in northern Wisconsin (Trout Lake), the University

Arboretum, the Zoological Museum and a Molecular Systematics Laboratory.

## FUNDING

Financial support may be provided through a limited number of teaching and research assistantships and by federal, industrial, and privately sponsored fellowships and traineeships. Graduate student support is available to all accepted graduate students and will be determined before arrival on campus.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

16 credits

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS:

With committee approval, students are allowed to count no more than 14 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements. Typically committees will choose to cap coursework from another institution at a lower level than 14 credits, but this is a committee decision to be made on a case by case basis.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With committee approval, students are allowed up to 7 credits numbered 300 or above from their UW-Madison undergraduate career to fulfill graduate requirements. Typically committees will choose to cap coursework allowed from undergraduate careers at a lower level than the 7 allowed, but this is a committee decision to be made on a case by case basis.

## **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With committee approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements. Typically committee members will choose to cap the number of coursework taken as a University Special student at a lower level, but this is a committee decision to be made on a case-by-case basis.

## **CREDITS PER TERM ALLOWED**

15 credits

## **PROGRAM-SPECIFIC COURSES REQUIRED**

Required coursework is determined for each student individually by the student's advisory committee.

## **OVERALL GRADUATE GPA REQUIREMENT**

3.00

## **OTHER GRADE REQUIREMENTS**

An average record of B or better in all work taken as a Graduate Student is required by the Department of Zoology (grades of P and S are for this purpose considered to be satisfactory at the B level; grades of Incomplete are considered for this purpose to be unsatisfactory if they are not removed during the following semester of residence).

## **PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

At the department level, the chair, in consultation with the major professor and advisory committee, may determine that the student's progress is unsatisfactory and so report to the faculty in closed session. If, after faculty review, the chair's determination is considered justified, the student will be notified that tenure in the department is to be terminated at the end of the semester. If the student disagrees with the judgment of the faculty, it shall be the student's responsibility to show cause as to why the faculty's opinion is not justified. Any student who is judged wanting in sufficient progress will be granted one additional probationary semester, at the end of which continuation in Graduate School will be denied unless by extraordinary initiative and application the student is able to persuade the faculty to reverse their decision.

## **ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor and a committee. To ensure that students are making satisfactory progress toward a degree, every student is required to meet with the advisor and committee annually to review progress. If a progress report has not been filed by May 1, a hold will be placed on student course registration.

## **ASSESSMENTS AND EXAMINATIONS**

In the second semester of the first year, students must complete the Certification of Candidate for a Master's Degree.

Typically the defense of the master's degree occurs no later than the end of the student's sixth semester. A master's degree warrant must be requested from the department prior to the defense.

## **TIME CONSTRAINTS**

It is up to the student's committee to determine whether or not a student who has been absent for five or more consecutive years will lose the credits earned before the absence; that coursework may not count toward Graduate School credit requirements.

## **LANGUAGE REQUIREMENTS**

To be determined by the advisory committee.

## **ADMISSIONS**

The department will accept applicants who have an adequate background for advanced work in one or more of the subdisciplines listed above and for whom a faculty member is willing to serve as major professor. In addition to the Graduate School application, all applicants must submit GRE scores, at least 3 letters of recommendation, a personal statement including areas of research interest and the names of prospective faculty advisors, a CV/resume, official transcripts from all undergraduate and graduate schools attended, and a calculation of the undergraduate GPA for the last 60 hours of undergraduate work. See the admissions page on the zoology website for more specific instructions regarding application requirements. The annual admission application deadline is December 1st.

The department faculty strongly believes that graduate education should be distinguished from undergraduate education in recognition of individuality and emphasis on responsibility in graduate students. This philosophy requires flexibility and is not well served by the imposition of many formal requirements to be met by all students. Rather, more emphasis is placed on the role of advisory committees in devising programs of breadth and depth appropriate for individual students with due regard to areas outside of biology which are important for the student's effectiveness in the chosen field.

## **LEARNING OUTCOMES**

### **KNOWLEDGE AND SKILLS**

#### **KNOWLEDGE**

- Master fundamental skills in at least one of the broad subject areas represented in the Department of Zoology.
- Students will demonstrate understanding of major current and past theories, research findings, and methodologies and techniques in their area of concentration.
- Students will develop critical thinking skills. They will retrieve and examine scientific literature, evaluate evidence for and against hypotheses, identify knowledge gaps, strengths and weaknesses in existing literature, synthesize knowledge, and develop conclusions.

#### **RESEARCH**

- Students will complete an original research project in one of the broad subject areas represented in the Department of Zoology.
- Students will retrieve, evaluate, and interpret professional scientific literature and use this information to select and/or use the most appropriate methods for their own research project.

- Students will conduct research, analyze, and interpret resulting data. Students will prepare a thesis or research report describing their research project.

## COMMUNICATION

- Effectively communicate in writing and orally.
- Students will write a clear and concise research report.
- Students will present research articulately and informatively. Students will have opportunities to engage in public outreach and education.

## PROFESSIONAL CONDUCT

### ETHICAL CONDUCT

- Students will have an understanding of professional and ethical responsibility.
- Students will be trained to use scientific rigor when designing experiments, collecting and analyzing data, interpreting and reporting results.
- Students will be trained in the ethics of publishing.
- Students will know and adhere to laws, regulations, needed permits and licenses, occupational health and safety standards.

### CAREER PREPARATION

- Students will be provided with diverse training that will prepare them for a range of flexible and sustainable careers (e.g., academia, industry, government, science policy and administration, science commerce, science writing, law, and science education and outreach at all levels).
- Students will develop broadly applicable skills in critical thinking and problem solving.
- Students will have opportunities for teamwork, communication skills, and collaborations.

## PEOPLE

**Faculty:** Professors: Hardin (chair), Bement, Blair, Carpenter, Engels, Epstein, Fernandez, Gammie, Goldberg, Halloran, Ives, Karasov, Lee, Lindroth, Marler, Porter, Ritters, Stanley, Stretton, Strier, Turner, Vander Zanden; Associate Professors: Amann, Auger, Bleiweiss, Brunet, Currie, Damschen, Gratton, Grinblat, Hawks, Lee, Orrock; Assistant Professors: Coen, McIntyre, Payseur, Peery, Pool, Sharma, Wolman

## ZOOLOGY, PH.D.

The Department of Integrative Biology offers graduate work leading to the master of arts or the master of science and the doctor of philosophy in zoology. Facilities and staff are available for advanced study in a wide variety of zoological fields including aquatic and terrestrial ecology, conservation biology, cell/molecular/developmental and neurobiology, endocrinology, ethology, genetics, evolution and systematics, comparative physiology, and physiological ecology.

In addition to a broad range of well-equipped laboratories, research facilities include advanced microscopy facilities (<http://www.microscopy.wisc.edu>), limnological laboratories on campus (Lake Mendota) and in northern Wisconsin (Trout Lake), the University

Arboretum, the Zoological Museum and a Molecular Systematics Laboratory.

## JOINT DEGREE

Doctoral students may elect a joint degree (two programs) which combines zoology with another biological program. The requirements for such candidates will be determined by the certification committee (which includes members of both programs) in accordance with regulations established by the Graduate School.

## FUNDING

Financial support may be provided through a limited number of teaching and research assistantships and by federal, industrial, and privately sponsored fellowships and traineeships. Graduate student support is available to all accepted graduate students and will be determined before arrival on campus.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

26 credits

At least 50% of credits applied toward the graduate degree credit requirement.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS:

With committee approval, students are allowed to count no more than 19 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements. Typically committees will choose to cap coursework from another institution at a lower level than 19 credits, but this is a committee decision to be made on a case by case basis.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With committee approval, students are allowed up to 7 credits numbered 300 or above from their UW-Madison undergraduate career to fulfill graduate requirements. Typically committees will choose to cap

coursework allowed from undergraduate careers at a lower level than the 7 allowed, but this is a committee decision to be made on a case by case basis.

### **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With committee approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements. Typically committee members will choose to cap the number of coursework taken as a University Special student at a lower level, but this is a committee decision to be made on a case-by-case basis.

### **CREDITS PER TERM ALLOWED**

15 credits

### **PROGRAM-SPECIFIC COURSES REQUIRED**

Required coursework is determined for each student individually by the student's advisory committee.

All students are required to serve as a teaching assistant for a minimum of one semester. All students must hold a departmental seminar in which to present their graduate research.

### **DOCTORAL MINOR/BREADTH REQUIREMENTS**

All students must either have a declared and named minor or a distributed minor.

### **OVERALL GRADUATE GPA REQUIREMENT**

3.00

### **OTHER GRADE REQUIREMENTS**

An average record of B or better in all work taken as a Graduate Student is required by the Department of Zoology (grades of P and S are for this purpose considered to be satisfactory at the B level; grades of Incomplete are considered for this purpose to be unsatisfactory if they are not removed during the following semester of residence).

### **PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

At the department level, the chair, in consultation with the major professor and advisory committee, may determine that a student's progress is unsatisfactory and so report to the faculty in closed session. If, after faculty review, the chair's determination is considered justified, the student will be notified that tenure in the department is to be terminated at the end of the semester. If the student disagrees with the judgment of the faculty, it shall be the student's responsibility to show cause as to why the faculty's opinion is not justified. Any student who is judged wanting in sufficient progress will be granted one additional probationary semester, at the end of which continuation in Graduate School will be denied unless by extraordinary initiative and application the student is able to persuade the faculty to reverse their decision.

### **ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor and a committee. To ensure that students are making satisfactory progress toward a degree, every student is required to meet with the advisor and committee annually to review progress. If a progress report has not been filed by May 1, a hold will be placed on student course registration.

### **ASSESSMENTS AND EXAMINATIONS**

In the second semester of the first year, students must complete the Certification of Candidate for a Ph.D. Degree.

By the end of the fourth semester, students must complete the qualifying examination and return the signed qualifying examination form to the department.

The preliminary examination (defense of research project) should be completed and the prelim warrant submitted by the end of the sixth semester. Note that in addition to passing the prelim exam, students must have completed 32 credits, clear all Incomplete or Progress grades in nonresearch courses, complete all minor requirements and earn at least a cumulative 3.0 GPA in order to be granted dissertator status. The preliminary defense warrant must be requested from the department.

Defense of the Ph.D. usually occurs after the tenth semester. A final defense warrant must be requested from the department.

### **TIME CONSTRAINTS**

It is up to the student's committee to determine whether or not a student who has been absent for five or more consecutive years will lose the credit earned before the absence; that coursework may not count toward Graduate School credit requirements.

### **LANGUAGE REQUIREMENTS**

To be determined by the advisory committee.

## **ADMISSIONS**

The department will accept applicants who have an adequate background for advanced work in one or more of the subdisciplines listed above and for whom a faculty member is willing to serve as major professor. In addition to the Graduate School application, all applicants must submit GRE scores, at least 3 letters of recommendation, a personal statement including areas of research interest and the names of prospective faculty advisors, a CV/resume, official transcripts from all undergraduate and graduate schools attended, and a calculation of the undergraduate GPA for the last 60 hours of undergraduate work. See the admissions page on the zoology website for more specific instructions regarding application requirements. The annual admission application deadline is December 1st.

The department faculty strongly believes that graduate education should be distinguished from undergraduate education in recognition of individuality and emphasis on responsibility in graduate students. This philosophy requires flexibility and is not well served by the imposition of many formal requirements to be met by all students. Rather, more emphasis is placed on the role of advisory committees in devising programs of breadth and depth appropriate for individual students with due regard to areas outside of biology which are important for the student's effectiveness in the chosen field.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### KNOWLEDGE

- Demonstrate academic mastery in at least one of the broad subject areas represented in the Department of Zoology.
- Students will demonstrate a broad understanding of major current and past theories, research findings, and methodologies and techniques in their area of concentration both orally and in writing.
- Students will develop critical thinking skills. They will retrieve and examine scientific literature, evaluate evidence for and against hypotheses, identify knowledge gaps, strengths and weaknesses in existing literature, synthesize knowledge, and develop conclusions.

#### RESEARCH

- Students will develop and complete original research that advances a specific field of study within one of the broad subject areas represented in the Department of Zoology.
- Students will retrieve, evaluate, and interpret professional scientific literature and use this information to develop theoretical frameworks, testable hypotheses, and predictions for their own research projects.
- Students will design realistic and feasible research projects and prepare necessary protocols.
- Students will conduct independent research and analyze and interpret resulting data.
- Students will prepare and submit manuscripts resulting from their independent research for publication in professional, peer-reviewed journals.

#### COMMUNICATION

- Effectively communicate to diverse audiences in writing, through oral presentations, and discussions.
- Students will write clear and concise research articles for publication in professional, peer-reviewed journals.
- Students will present at scientific conferences and/or in formal and informal seminars.
- Students will learn methods of communication needed to interact with professional colleagues and to request grant support.
- Students will present research articulately and informatively to diverse audiences.
- Students will give and receive feedback orally and in writing.
- Students will have with opportunities to engage in public outreach and education.

#### TEACHING

- Effectively teach topics or research methods in cellular and molecular biology; developmental biology; neuroscience; physiology; ecology; evolution; or animal behavior.
- Students will receive training and serve as teaching assistants for at least one semester.
- Students will have with opportunities to mentor others in a laboratory or research setting.

### PROFESSIONAL CONDUCT

#### ETHICAL CONDUCT

- Students will have an understanding of professional and ethical responsibility.
- Students will be trained to use scientific rigor when designing experiments, collecting and analyzing data, interpreting and reporting results.
- Students will be trained in the ethics of publishing.
- Students will know and adhere to laws, regulations, needed permits and licenses, occupational health and safety standards.

#### CAREER PREPARATION

- Students will be provided with diverse training that will prepare them for a range of flexible and sustainable careers (e.g., academia, industry, government, science policy and administration, science commerce, science writing, law, and science education and outreach at all levels).
- Students will develop broadly applicable skills in critical thinking and problem solving.
- Students will have opportunities to develop skills in leadership, project management, teamwork, and communication and to develop collaborations with nonacademic partners.

## PEOPLE

**Faculty:** Professors: Hardin (chair), Bement, Blair, Carpenter, Engels, Epstein, Fernandez, Gammie, Goldberg, Halloran, Ives, Karasov, Lee, Lindroth, Marler, Porter, Ritters, Stanley, Stretton, Strier, Turner, Vander Zanden; Associate Professors: Amann, Auger, Bleiweiss, Brunet, Currie, Damschen, Gratton, Grinblat, Hawks, Lee, Orrock; Assistant Professors: Coen, McIntyre, Payseur, Peery, Pool, Sharma, Wolman

# JOURNALISM AND MASS COMMUNICATION

**Administrative Unit:** Journalism and Mass Communication

**College/School:** College of Letters & Science

**Admitting Plans:** M.A.

**Degrees Offered:** M.A.

Graduate programs in journalism and mass communication are designed for advanced academic preparation in the various fields of mass communication and journalism, and for training in research and teaching. The School of Journalism and Mass Communication offers three options for the master of arts: professional-track M.A. (30 credits in multi-media communication and topic specialization); thesis-track M.A. (30 credits in theory and methods plus thesis); and non-thesis M.A. (30 credits with tight focus on journalism and mass communication concepts).

The school is a recognized leader in teaching and research in a variety of topics including the process and effects of mass communication; communication campaigns; community and social movements; consumer and popular culture; health and science communication; history of mass communication; international communication; media accountability and criticism; media law and policy; new media technology; political communication and public opinion; and race, gender and mass communication. Graduate work prepares students to use and contribute to the research and scholarship in these and many other areas. Identifying important questions, gathering evidence, and understanding standards of inference are dominant features of all graduate degree programs.

Funding is available in the form of teaching assistantships, research assistantships and project assistantships. Qualified students also will be recommended for university fellowships.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Journalism and Mass Communication, M.A. (p. 456)
- Mass Communications, Doctoral Minor (p. 459)
- Mass Communications, Ph.D. (p. 459)

## RESOURCES

### FACILITIES

The Center for Journalism Ethics (<https://ethics.journalism.wisc.edu>) advances the ethical standards and practices of democratic journalism through discussion, research, teaching, professional outreach, and newsroom partnerships. Students, faculty, leading journalists and members of the public participate in conferences, workshops, and publications. The center tracks and analyzes ethical issues for all media platforms on its website. The center contributes to the teaching of ethics in the school's curriculum. Students have the opportunity to write for the center's website, cover conferences, and contribute to research.

The Mass Communication Research Center is an interdisciplinary research facility that conducts research into all phases of communication

and provides a common meeting ground for scholars with an interest in communication behavior. It also provides an opportunity for graduate students to participate in research programs and to initiate and conduct their own thesis projects.

The Center for Communication and Democracy is a research and action project at UW–Madison. The goals of the center are to study how citizens can use new communications technologies to advance democratic discussion and civic participation; to explore the relationships between geographic communities and the emerging world of cyberspace; to explore the structural relations among communications and information markets, the civic sector, and government to find relationships necessary to build and sustain a public sphere in communication that is not dominated by the market, while sustaining economic growth and technological innovation; and to ask what government policies are most appropriate for combining the vibrancy of the market with the common needs of citizens in the sphere of communication.

The Mass Communication History Center, a part of the Wisconsin Historical Society, provides scholars access to private collections, papers, and various types of unpublished materials relating to the growth of mass communication in the United States and other parts of the world. The Wisconsin Historical Society also has a large collection of bound and microfilm files of American and foreign newspapers.

The Center for Environmental Communication and Education Studies focuses on teaching and research within the wider sphere of mass media communication of science, environment, and technology. The center maintains a small library of books and articles and provides resources for students who wish to conduct research on various aspects of media coverage of science and technology.

## PEOPLE

**Faculty:** Professors Baughman, Culver, Downey, Drechsel, Fair, Friedland, Gunther, Kim, McLeod, Riddle, Robinson, Rojas, D. Shah, H. Shah, Vaughn; Assistant Professors Graves, Palmer, Wagner, Wells

## JOURNALISM AND MASS COMMUNICATION, M.A.

Three available tracks:

1. Professional-track master's focused on specialized training in multimedia skills that lead to careers in mass media industries.
2. Thesis-track master's focused on developing skills in mass communication research and typically leading to enrollment in a doctoral program.
3. Non-thesis master's for students interested in basic concepts and theories in journalism and mass communication studies but not in advanced doctoral-level training.

Graduate programs in journalism and mass communication are designed for advanced academic preparation in the various fields of mass communication and journalism, and for training in research and teaching. The School of Journalism and Mass Communication offers three options for the master of arts: professional-track M.A. (30 credits in multi-media communication and topic specialization); thesis-track M.A. (30 credits



in theory and methods plus thesis); and non-thesis M.A. (30 credits with tight focus on journalism and mass communication concepts).

The school is a recognized leader in teaching and research in a variety of topics including the process and effects of mass communication; communication campaigns; community and social movements; consumer and popular culture; health and science communication; history of mass communication; international communication; media accountability and criticism; media law and policy; new media technology; political communication and public opinion; and race, gender and mass communication. Graduate work prepares students to use and contribute to the research and scholarship in these and many other areas. Identifying important questions, gathering evidence, and understanding standards of inference are dominant features of all graduate degree programs.

## FUNDING

Funding is available in the form of teaching assistantships, research assistantships and project assistantships. Qualified students also will be recommended for university fellowships.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., with available professional track and research/thesis track

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of the required coursework (15 of 30 credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, up to 7 credits numbered 300 or 400 and advanced courses at the 500 and 600 level that assess graduate

students separately from undergraduate students from a UW-Madison undergraduate degree are allowed to count toward the degree. Courses that qualify include:

Code	Title	Credits
JOURN 345	Principles and Practice of Strategic Communication	4
JOURN 401	In-Depth Reporting	4
JOURN 404	Interpretation of Contemporary Affairs	4
JOURN 405	Creative Nonfiction	4
JOURN 411	Multimedia Design	4
JOURN 425	Video Journalism	4
JOURN 445	Creative Campaign Messages	4
JOURN 447	Strategic Media Planning	4
JOURN 449	Account Planning and Strategy	4
JOURN 475	Special Topics in Advanced Concepts and Skills	1-4
JOURN/ HISTORY 560	History of Mass Communication	4
JOURN 561	Mass Communication and Society	4
JOURN 565	Effects of Mass Communication	4
JOURN 566	Communication and Public Opinion	4
JOURN/COM ARTS/ HDFS 616	Mass Media and Youth	3
JOURN/COM ARTS/ LSC 617	Health Communication in the Information Age	3
JOURN 618	Mass Communication and Political Behavior	4
JOURN 620	International Communication	4
JOURN 621	Mass Communication in Developing Nations	4
JOURN 658	Communication Research Methods	4
JOURN/ ASIAN AM 662	Mass Media and Minorities	4
JOURN 669	Literary Aspects of Journalism	3
JOURN 675	Topics in Government and Mass Media	3
JOURN 676	Special Topics in Mass Communication	1-4
JOURN 699	Directed Study	1-6

Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework taken as a UW-Madison Special student. This includes courses numbered 300 or 400 and advanced courses at the 500 and 600 level which are identified with the Graduate Level Coursework attribute in the University's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>). Courses that qualify include:

Code	Title	Credits
JOURN 345	Principles and Practice of Strategic Communication	4

JOURN 401	In-Depth Reporting	4
JOURN 404	Interpretation of Contemporary Affairs	4
JOURN 405	Creative Nonfiction	4
JOURN 411	Multimedia Design	4
JOURN 425	Video Journalism	4
JOURN 445	Creative Campaign Messages	4
JOURN 447	Strategic Media Planning	4
JOURN 449	Account Planning and Strategy	4
JOURN 475	Special Topics in Advanced Concepts and Skills	1-4

Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

No program-specific courses required.

## OVERALL GRADUATE GPA REQUIREMENT

3.25 GPA required.

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all core curriculum coursework.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

M.A. thesis track students are required to have a thesis committee of three faculty members.

M.A. professional track students are required to have one faculty advisor.

## ASSESSMENTS AND EXAMINATIONS

M.A. thesis track requires a formal thesis and defense; the Professional M.A. track requires a portfolio presentation.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

To apply for the master's, students must have a four-year bachelor's degree, an undergraduate GPA of 3.0 (on a 4.0 scale), and completed Graduate Record Exam (GRE). Three letters of recommendation are required of all applicants. GRE scores (verbal, quantitative, and analytical writing tests) are required for U.S. students and international students. International students are also required to take the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) exam. Test scores must be furnished to the school before the application is considered complete.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Attain mastery in an area of the mass communication field. This encompasses an ability to articulate, critique, or elaborate theories, research methods, and approaches to inquiry in the chosen field of study. (Research)
- Identify sources and assemble evidence pertaining to questions or challenges in the field of communication. (Research)
- Demonstrate understanding of the primary field of study in a historical, social, psychological, cultural or global context. (Research)
- Select and/or utilize the most appropriate methodologies and practices. (Research)
- Evaluate or synthesize information pertaining to questions or challenges in the field of communication. (Research)
- Develop professional communication skills related to gathering, assessing, compiling and disseminating information, by selecting and/or utilizing the most appropriate methodologies and practices and the evaluation and synthesis of information. (Professional)
- Demonstrate understanding of the journalism field of study. (Professional)
- Select and/or utilize the most appropriate professional journalistic practices. (Professional)
- Evaluate or synthesize information pertaining to questions or challenges in their field of journalistic specialization. (Professional)
- Attain mastery in an area of the mass communication field. This encompasses an ability to articulate, critique, or elaborate theories and approaches to inquiry in the chosen field of study. (Non-Thesis)
- Develop in-depth and specialized expertise in a topic of interest. In doing so students will be able to identify sources of information and assemble evidence pertaining to questions in that area. (Non-Thesis)
- Demonstrate understanding of the primary field of study. (Non-Thesis)
- Select and/or utilize the most appropriate professional practices. (Non-Thesis)
- Evaluate or synthesize information pertaining to questions or challenges in their field of specialization. (Non-Thesis)

### PROFESSIONAL CONDUCT

- Communicate clearly in ways appropriate to the field of study. (Research)
- Communicate clearly in ways appropriate to journalism practice. (Professional)

- Communicate clearly in ways appropriate to the field of study. (Non-Thesis)

## PEOPLE

**Faculty:** Professors Baughman, Culver, Downey, Drechsel, Fair, Friedland, Gunther, Kim, McLeod, Riddle, Robinson, Rojas, D. Shah, H. Shah, Vaughn; Assistant Professors Graves, Palmer, Wagner, Wells

## MASS COMMUNICATIONS, DOCTORAL MINOR

A candidate for a Ph.D. degree in another area may earn a doctoral minor in mass communications by taking a minimum of 10 credits in the School of Journalism and Mass Communication. Typically, the student will write a dissertation combining research in the major and minor fields. This minor is open to any Ph.D. students who seek to complement their main area of research with a thorough understanding of communication dynamics and how these dynamics affect society.

## REQUIREMENTS

A minor in mass communications consists of at least 10 graduate credits in the School of Journalism and Mass Communication seminars and colloquia.

## ADMISSIONS

Contact Lisa Aarli, graduate advisor, [aarli@wisc.edu](mailto:aarli@wisc.edu).

## MASS COMMUNICATIONS, PH.D.

The Ph.D. degree in mass communications is an interdisciplinary program offered jointly by the Department of Life Sciences Communication and the School of Journalism and Mass Communication.

The program offers several internationally recognized areas of research and teaching excellence:

- health communication
- science communication
- environmental communication
- political communication
- risk communication
- social marketing
- brand communication
- public opinion
- international communication
- media processes and effects
- race and culture
- social and psychological factors affecting communication
- ethics, law and history

Working closely with their major professor and committee, students draw from courses offered in departments across the campus to develop a

plan of study in preparation for independent and original research in their areas of interest.

## FUNDING

Prospective students should see the program website (<https://masscommphd.wisc.edu/funding>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREE

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

65 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of the required coursework (33 of 65 credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

In consultation with the student's advisor, and with program approval, students are allowed to count no more than 33 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, up to 7 credits numbered 600 and above from a UW-Madison undergraduate degree are allowed to count toward the degree. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

In consultation with the student's advisor and with program approval, students are allowed to count no more than 12 credits of coursework numbered 600 and above taken as a UW-Madison Special student. Coursework taken ten years prior to admission to the doctoral program is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits for non-dissertators; dissertators must enroll for exactly 3 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Attendance of both seminars in the joint seminar sequence (JOURN/LSC 901 Colloquium in Mass Communication and LSC 700 Colloquium in Life Sciences Communication ) is strongly recommended for new graduate students.

Additional requirements are detailed in the Academic Policies and Procedures Handbook for Graduate Work in the joint Ph.D. program in mass communications.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Breadth is provided via interdisciplinary training (minor requirement waived).

## OVERALL GRADUATE GPA REQUIREMENT

3.50 GPA required

## OTHER GRADE REQUIREMENTS

Courses in which the student earns a grade below B do not count toward the 65 credit minimum, but they do count in the cumulative GPA.

## PROBATION POLICY

Doctoral students must do the following to maintain satisfactory progress:

1. Earn a minimum 3.5 cumulative GPA by the end of the second semester in residence and maintain that GPA for the duration of the degree program.
2. Remove grades of Incomplete in the semester following their occurrence. A course proposal cannot be approved until all incompletes are removed.
3. Complete preliminary exams within three to six months of completing coursework.
4. Maintain steady progress toward completion of degree, including final oral exam and deposit of dissertation. Fulltime students can expect four to five years; completion will vary for part-time students.

## ADVISOR / COMMITTEE

Doctoral committees must include at least two members from outside the Department of Life Sciences Communication and the School of Journalism and Mass Communication.

## ASSESSMENTS AND EXAMINATIONS

Doctoral students must pass preliminary exams once coursework is completed.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Applicants for this program are expected to have demonstrated an interest and background in communication research by having earned a thesis-based M.A. or M.S. degree in communication or other relevant disciplines. The admissions committee, however, may accept other evidence of suitable preparation.

Students must meet the minimum requirements for admission set by the Graduate School. Applicants must submit an online application, GRE scores, a statement of purpose, official transcripts from all previously attended institutions, a CV, and three letters of recommendation. Letters of recommendation should come from people who can speak to the scholarly abilities of the applicant. International applicants are required to take and attain a satisfactory score on the Test of English as a Foreign Language (TOEFL), or the International English Language Testing System (IELTS) exam. Test scores must be furnished to the school before the application is considered complete.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulate research problems, potentials, and limits with respect to theory, knowledge, and practice within the field of study. Demonstrating comprehensive and intensive knowledge of the theories, concepts, frameworks, empirical findings, and controversies in the field.
- Formulate ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study. Demonstrating a comprehensive and intensive knowledge of appropriate and relevant research methods and analytical techniques.
- Create research or scholarship that makes a substantive contribution to knowledge.
- Demonstrate breadth within their learning experiences.
- Advance contributions of the field of study to society.
- Communicate complex ideas effectively.

### PROFESSIONAL CONDUCT

- Students earning a doctorate in mass communications will foster ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Baughman, Brossard (LSC Chair), Downey, Drechsel, Dunwoody, Friedland, Gunther, Loew, McLeod, Mitchell, Meiller, Reaves, Rojas (SJMC Director of Graduate Studies), Scheufele (LSC Director of Graduate Studies), D Shah, H Shah (SJMC Chair), Vaughn. Associate Professors: Kim, Riddle, Robinson, Shaw, Shepard, Wagner. Assistant Professors: Culver, Graves, Palmer, Stenhouse, Wells

# KINESIOLOGY

**Administrative Unit:** Kinesiology

**College/School:** School of Education

**Admitting Plans:** M.S., OTD, Ph.D.

**Degrees Offered:** M.S. in Kinesiology; M.S. in Occupational Therapy; OTD in Occupational Therapy; Ph.D. in Kinesiology

**Minors and Certificates:** Doctoral Minor in Kinesiology

The mission of the Department of Kinesiology is to create, interpret, transmit, and apply knowledge related to movement, exercise, and human occupation with the ultimate goal of enhancing human health, productivity, and quality of life. The M.S. and Ph.D. in kinesiology are available with research specialization (thesis or dissertation) in biomechanics, exercise physiology, exercise psychology, motor control and behavior, physical activity epidemiology, and occupational science.

The M.S. in kinesiology with the nonthesis option provides courses that cover the breadth of the kinesiology field and electives, and it may include a final project. This degree supports an interest in coaching/teaching (team or individual), personal training or fitness instruction, or it may supplement the practice of physical therapy, athletic training, or other allied health professions, or any individual purpose a student may have. No thesis is required.

The occupational therapy program resides in the Department of Kinesiology and offers two graduate professional programs, an entry-level master of science (MS–OT (p. 467)) and a post-professional doctor of occupational therapy (OTD (p. 469)). Occupational therapists interested in pursuing a Ph.D. may also apply to the occupational science track of the Ph.D. in kinesiology (p. 464). The purpose of the graduate program is to prepare clinicians, researchers, and teachers who possess a solid foundation in both the theoretical and applied aspects of the disciplines of occupational therapy and science.

Graduate training in kinesiology can be directed toward the degrees of M.S. and/or Ph.D. in kinesiology. Both of these degrees combine advanced courses with the option of an intensive research experience. Department research facilities are well equipped, and faculty and graduate students have access to other specialized research facilities across campus. Faculty and graduate student research is currently supported by funding from the state and federal government, research foundations, and private industry. Faculty are affiliated with the Institute on Aging; Cardiovascular Research Center; Center for Neuroscience/Neuroscience Training Program; departments of Biomedical Engineering, Mechanical Engineering, Medicine, Neurology, Population Health Science, and Psychology; McPherson Eye Research Institute; Harlow Center for Biological Psychology; interdepartmental graduate program in Nutritional Sciences; Trace Research and Development Center; VA Geriatric Research and Education Center; Waisman Center; and Wisconsin Alzheimer's Institute.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Kinesiology, Doctoral Minor (p. 461)
- Kinesiology, M.S. (p. 462)
- Kinesiology, Ph.D. (p. 464)
- Occupational Therapy, M.S. (p. 467)

- Occupational Therapy, OTD (p. 469)

## PEOPLE

### KINESIOLOGY

**Faculty:** Professors Edwards (chair), Cook, Diffie, Koltyn, Schrage; Associate Professors Benedict, Eldridge, Gruben, Larson, Mason, van Kan; Assistant Professors Ausderau, Barnes, Bell, Hornberger, Pickett, Travers

### OCCUPATIONAL THERAPY

**Faculty:** Professors Benedict (OT program coordinator), Edwards; Associate Professor Larson; Assistant Professors Ausderau, Pickett, Travers. Additional instructors are listed here (<https://kinesiology.education.wisc.edu/occupational-therapy-homepage/people-of-ot>).

## KINESIOLOGY, DOCTORAL MINOR

The Department of Kinesiology's mission is to research, teach and apply knowledge related to movement, exercise and human occupation, with the ultimate goal of enhancing human health, productivity and quality of life. The Department of Kinesiology offers graduate courses that reflect the breadth of the discipline, including biomechanics, exercise psychology, exercise physiology, motor control and behavior, physical activity epidemiology and occupational science. A minor from the Department of Kinesiology is tailored to each student's individual interests, career goals, needs and background. The learning goals for the doctoral minor are to demonstrate an understanding of the major current and past theories, research findings, methodologies and techniques in one or more of the broad areas of inquiry represented within the Department of Kinesiology.

## REQUIREMENTS

The student must complete 9 credits in kinesiology courses such that all of the following conditions are satisfied:

- All credits must be in courses numbered 300 and above
- At least 3 credits are taken in courses numbered 700 and above
- The student receives a satisfactory grade (C or above) for all credits
- The GPA of the credits counted is at least 3.00
- All credits are taken as a graduate student

## ADMISSIONS

Graduate students in other programs at UW–Madison who plan to minor in kinesiology should contact the Department of Kinesiology graduate studies chair early in their graduate program to ensure acceptance into and adequate mentoring in the minor program (see Information for Prospective Students (<http://kinesiology.education.wisc.edu/kinesiology/academics/graduate-programs/prospective-students>)). When students meet with the graduate studies chair, they will fill out a course plan. The department's graduate studies chair, the student's doctoral committee mentor, and the student must sign the course plan.

## PEOPLE

### KINESIOLOGY

**Faculty:** Professors Edwards (chair), Cook, Diffie, Koltyn, Schrage; Associate Professors Benedict, Eldridge, Gruben, Larson, Mason, van Kan; Assistant Professors Ausderau, Barnes, Bell, Hornberger, Pickett, Travers

### OCCUPATIONAL THERAPY

**Faculty:** Professors Benedict (OT program coordinator), Edwards; Associate Professor Larson; Assistant Professors Ausderau, Pickett, Travers. Additional instructors are listed here (<https://kinesiology.education.wisc.edu/occupational-therapy-homepage/people-of-ot>).

## KINESIOLOGY, M.S.

The mission of the Department of Kinesiology is to create, interpret, transmit, and apply knowledge related to movement, exercise, and human occupation with the ultimate goal of enhancing human health, productivity, and quality of life.

The M.S. and Ph.D. in kinesiology are available with research specialization (thesis or dissertation) in biomechanics, exercise physiology, exercise psychology, motor control and behavior, physical activity epidemiology, and occupational science.

The M.S. in kinesiology with the nonthesis option provides courses that cover the breadth of the kinesiology field and electives, and it may include a final project. This degree supports an interest in coaching/teaching (team or individual), personal training or fitness instruction, or it may supplement the practice of physical therapy, athletic training, or other allied health professions, or any individual purpose a student may have. No thesis is required.

An M.S. in occupational therapy (MS-OT) prepares students for entry into the occupational therapy profession. This is a professional degree open to students with a bachelor's degree in any field from an accredited college or university. No thesis is required.

Graduate training in kinesiology can be directed toward the degrees of M.S. and/or Ph.D. in kinesiology. Both of these degrees combine advanced courses with the option of an intensive research experience. Department research facilities are well equipped, and faculty and graduate students have access to other specialized research facilities across campus. Faculty and graduate student research is currently supported by funding from the state and federal government, research foundations, and private industry. Faculty are affiliated with the Institute on Aging; Cardiovascular Research Center; Center for Neuroscience/Neuroscience Training Program; departments of Biomedical Engineering, Mechanical Engineering, Medicine, Neurology, Population Health Science, and Psychology; McPherson Eye Research Institute; Harlow Center for Biological Psychology; interdepartmental graduate program in Nutritional Sciences; Trace Research and Development Center; VA Geriatric Research and Education Center; Waisman Center; and Wisconsin Alzheimer's Institute.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S. with available occupational science track, thesis tracks in biomechanics, epidemiology, exercise psychology, exercise physiology, motor behavior, and non-thesis track

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

M.S.—non-thesis track: 32 credits

M.S.—occupational science track: 31 credits

M.S.—all other thesis-based tracks: 30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of the required degree coursework must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 15 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken in UW-Madison University Special student status. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

KINES 991 Research in Physical Activity- Theory and Design required for all non-OT tracks; wide variation in required courses among tracks, see

Graduate Program Areas (<http://go.wisc.edu/7ap7xd>) on the program website.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Course numbered 300 and above with a grade of A, AB, B, or S count toward minimum credit requirement; grades of BC or C count only if equal credits of AB and A offset the lower grades to average B (3.00). See the Graduate School's Academic Policies and Procedures (<http://grad.wisc.edu/acadpolicy/#minimumcreditrequirement>) for more information.

The grading system is also described in the Graduate School's Academic Policies and Procedures (<http://grad.wisc.edu/acadpolicy/#gradingsystem>).

## PROBATION POLICY

The status of a graduate student's progress is either:

1. Good standing (progressing according to standards; any funding guarantee remains in place); or
2. Probation (not progressing according to standards but permitted to keep enrolling; funding guarantee may be lost; specific plan with dates and deadlines for removal of probation may be required; or
3. Unsatisfactory progress (not progressing according to standards; not permitted to keep enrolling, dismissal, leave of absence or change of advisor or program likely required).

An overall GPA below 3.0 will place the student on academic probation. If a 3.0 GPA not regained in the subsequent semester the student may be dismissed from the program or allowed to continue provisionally for 1 semester based on advisor appeal to the Graduate School. The Graduate School's probation policy is described in the Graduate School's Academic Policies and Procedures (<http://grad.wisc.edu/acadpolicy/#probation>).

## ADVISOR / COMMITTEE

All students must have an assigned advisor to meet UW information management needs, and accordingly, and of its own volition, the department assigns an advisor to each student.

M.S. –non-thesis track: graduate studies Studies chair

M.S. –all other thesis-based tracks: research faculty

A thesis committee, for those tracks requiring a thesis, are gathered prior to the thesis proposal in consultation with the faculty advisor and consistent with Graduate School policy (<http://grad.wisc.edu/acadpolicy/#committees>). Normally the proposal committee would continue as the thesis defense committee.

## ASSESSMENTS AND EXAMINATIONS

No formal examination specific to the M.S. is required. Curricular requirements vary among tracks within the program, and in all tracks all didactic courses must be passed, in conformity with GPA and grad requirements, above. For tracks requiring a thesis, the thesis defense committee has discretion to accept or reject the thesis at the student's defense. Repeat defense, if required, is at the discretion of the advisor. Until the thesis proposal stage, satisfactory research performance is at the discretion of the faculty advisor in any thesis track.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

Within the Department, completion of required courses and proposal of the thesis, when applicable, within two years of matriculation is considered satisfactory progress. See the program handbook (<http://kinesiology.education.wisc.edu/docs/kinesiology-documents/grad-program-pols-proceeds-manual-posted-to-web-site-14-oct-2011.pdf?sfvrsn=0>) for more information.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Admission to the M.S. and Ph.D. graduate programs requires satisfactory completion of the department's general prerequisite courses, listed below, or their equivalent. A degree in occupational therapy fulfills the department's prerequisites for occupational science admission. Students lacking some prerequisite courses may be considered for admission with 'deficiencies.' The deficiencies must be made up during (or before) the student's graduate studies, but the student retains eligibility for departmental financial support. Generally, deficiencies may not exceed 12 credits, and if they do, normally the student would enroll as a nondegree Special student or make up the deficiencies in some other way before graduate admission. Graduate students in Kinesiology are given priority for assistantship support from department funds, and students from other departments are not supported by department funds unless there are no eligible students in the Kinesiology department. Individual specialization areas may have specific course requirements in addition to the following department prerequisite courses. Please contact the department or see the web site for detailed information.

Code	Title	Credits
<b>Prerequisite courses and credits (or courses to be taken as deficiencies):</b>		
CHEM 103	General Chemistry I	4
ANATOMY/ KINES 328	Human Anatomy	3
ANATOMY/ KINES 329	Human Anatomy-Kinesiology	2
PHYSIOL 335	Physiology	5
<b>Select two of the following courses, or equivalents:</b>		
KINES 314	Physiology of Exercise	4
KINES 315	Assessment and Research in Physical Activity Pedagogy	3
KINES 318	Biomechanics of Human Movement	3
KINES 330	Research in Kinesiology	2
KINES 350	Introduction to Exercise Psychology	3
KINES 360	Lifespan Motor Development	3
KINES 361	Motor Learning and Performance	3

For admission, the Graduate School requires, as does the Kinesiology department, a minimum 3.0 GPA (on a 4.0=A scale) on the last 60 semester hours (or equivalent) of undergraduate coursework. An

applicant must submit official Graduate Record Exam (GRE) scores, academic transcripts from each institution attended, a minimum of three letters of recommendation, and a statement of reasons for graduate study. The statement should name the applicant's intended area(s) of specialization and provide specific details on why the applicant names the area(s). Faculty in the intended research specialization(s) will decide whether the applicant is acceptable for the graduate program in the Department of Kinesiology. If a professor in the area of specialization agrees to serve as the prospective student's advisor, then the department's graduate office recommends the applicant for admission to the Graduate School. A committee reviews, and an individual advisor is not required for, nonthesis admissions. Please consult the kinesiology website (<http://www.education.wisc.edu/kinesiology>) for further details of these requirements and procedures.

All doctoral students in the Department of Kinesiology must satisfy the Ph.D. general field requirement by completing at least two graduate-level kinesiology courses of at least 2 credits each (4–6 credits total) at UW–Madison, in two different areas outside the student's area of specialization. These courses must be completed on the UW–Madison campus and must not have been used to fulfill an undergraduate deficiency or requirements for the master's degree. A Ph.D. minor is optional.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students in thesis-based tracks will master fundamental knowledge in at least one of the broad areas of specialization represented in the Department of Kinesiology.
- Students will demonstrate understanding of major current and past theories, research findings, methodologies, and techniques in their areas of specialization.
- Students will identify sources and assemble evidence pertaining to questions or challenges in their area of specialization.
- Students in thesis-based tracks will complete an original research project in one of the broad areas of specialization represented in the Department of Kinesiology.
- Students will select and utilize appropriate methodologies to conduct research, analyze, and interpret resulting data.
- Students will prepare a thesis or research report describing their research project.
- Students will communicate clearly in ways appropriate to their area of specialization.
- Students in the non-thesis track will demonstrate fundamental knowledge in the broad areas of specialization represented in the Department of Kinesiology.
- Students will demonstrate an understanding of the major current and past theories, research findings, methodologies and techniques in each of the broad areas of inquiry represented within the Department of Kinesiology.
- Students will retrieve and examine scientific literature, evaluate evidence for and against hypotheses, and be able to discuss strengths and weaknesses in existing literature.

### PROFESSIONAL CONDUCT

- Students in the thesis-based tracks will recognize and apply principles of professional and ethical conduct.

- Students will use scientific rigor when designing experiments, collecting and analyzing data, interpreting and reporting results.
- Students in the non-thesis track will recognize and apply principles of professional and ethical conduct.

## PEOPLE

### KINESIOLOGY

**Faculty:** Professors Edwards (chair), Cook, Diffie, Koltyn, Schrage; Associate Professors Benedict, Eldridge, Gruben, Larson, Mason, van Kan; Assistant Professors Ausderau, Barnes, Bell, Hornberger, Pickett, Travers

### OCCUPATIONAL THERAPY

**Faculty:** Professors Benedict (OT program coordinator), Edwards; Associate Professor Larson; Assistant Professors Ausderau, Pickett, Travers. Additional instructors are listed here (<https://kinesiology.education.wisc.edu/occupational-therapy-homepage/people-of-ot>).

## KINESIOLOGY, PH.D.

The mission of the Department of Kinesiology is to create, interpret, transmit, and apply knowledge related to movement, exercise, and human occupation with the ultimate goal of enhancing human health, productivity, and quality of life.

The M.S. and Ph.D. in kinesiology are available with research specialization (thesis or dissertation) in biomechanics, exercise physiology, exercise psychology, motor control and behavior, physical activity epidemiology, and occupational science.

The M.S. in kinesiology with the nonthesis option provides courses that cover the breadth of the kinesiology field and electives, and it may include a final project. This degree supports an interest in coaching/teaching (team or individual), personal training or fitness instruction, or it may supplement the practice of physical therapy, athletic training, or other allied health professions, or any individual purpose a student may have. No thesis is required.

An M.S. in occupational therapy (MS–OT) prepares students for entry into the occupational therapy profession. This is a professional degree open to students with a bachelor's degree in any field from an accredited college or university. No thesis is required.

Graduate training in kinesiology can be directed toward the degrees of M.S. and/or Ph.D. in kinesiology. Both of these degrees combine advanced courses with the option of an intensive research experience. Department research facilities are well equipped, and faculty and graduate students have access to other specialized research facilities across campus. Faculty and graduate student research is currently supported by funding from the state and federal government, research foundations, and private industry. Faculty are affiliated with the Institute on Aging; Cardiovascular Research Center; Center for Neuroscience/Neuroscience Training Program; departments of Biomedical Engineering, Mechanical Engineering, Medicine, Neurology, Population Health Science, and Psychology; McPherson Eye Research Institute; Harlow Center for Biological Psychology; interdepartmental graduate program in Nutritional Sciences; Trace Research and Development Center; VA Geriatric Research and Education Center; Waisman Center; and Wisconsin Alzheimer's Institute.



## FUNDING

Prospective students should see the program website (<http://kinesiology.education.wisc.edu/kinesiology/academics/graduate-programs/financial-support>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### DOCTORAL DEGREES

Ph.D., with available track in occupational therapy

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

50% of degree coursework (26 credits out of 51 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 15 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken in UW-Madison University Special student status. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

KINES 991 Research in Physical Activity- Theory and Design required for all non-OT tracks; wide variation in required courses among tracks, see

Graduate Program Areas (<http://go.wisc.edu/7ap7xd>) on the program website.

A 10-credit PhD. minor and a minimum 4-credit, two-course general field requirement pertain to the Ph.D., with courses descriptively but not specifically prescribed. See Kinesiology Graduate Program Policies & Procedures Manual (<http://go.wisc.edu/6701qm>) (section 6).

#### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a minor, currently minimum 10 credits, either "distributed" (several departments) or in a single outside department. Students must consult their advisors on minor requirements.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

#### OTHER GRADE REQUIREMENTS

Course numbered 300 and above with a grade of A, AB, B, or S count toward minimum credit requirement; grades of BC or C count only if equal credits of AB and A offset the lower grades to average B (3.00). See the Graduate School's Academic Policies and Procedures (<http://grad.wisc.edu/acadpolicy/#minimumcreditrequirement>) for more information.

The grading system is also described in the Graduate School's Academic Policies and Procedures (<http://grad.wisc.edu/acadpolicy/#gradingsystem>).

#### PROBATION POLICY

The status of a graduate student's progress is either:

1. Good standing (progressing according to standards; any funding guarantee remains in place); or
2. Probation (not progressing according to standards but permitted to keep enrolling; funding guarantee may be lost; specific plan with dates and deadlines for removal of probation may be required; or
3. Unsatisfactory progress (not progressing according to standards; not permitted to keep enrolling, dismissal, leave of absence or change of advisor or program likely required).

An overall GPA below 3.0 will place the student on academic probation. If a 3.0 GPA not regained in the subsequent semester the student may be dismissed from the program or allowed to continue provisionally for 1 semester based on advisor appeal to the Graduate School. The Graduate School's probation policy is described in the Graduate School's Academic Policies and Procedures (<http://grad.wisc.edu/acadpolicy/#probation>).

#### ADVISOR / COMMITTEE

Ph.D. students work with two (or three) committees during their studies.

1. Preliminary exams Committee (three graduate faculty members)
2. Dissertation committee (five members)
  - a. Proposal committee
  - b. Defense committee

Ordinarily the proposal and defense committees have the same membership, absent death or other incapacity of a committee member between the time of proposal and defense. Committee members selected by the student in consultation with the faculty advisor to be consistent with Graduate School policy (<http://grad.wisc.edu/acadpolicy/#committees>).

## ASSESSMENTS AND EXAMINATIONS

Ph.D. students must:

1. pass all didactic courses in conformity with GPA and grad requirements;
2. pass preliminary exams (<http://grad.wisc.edu/acadpolicy/#preliminaryexaminations>) (sometimes called "comprehensives") administered by a three-member faculty committee (<http://kinesiology.education.wisc.edu/docs/kinesiology-documents/grad-program-pols-proceeds-manual-posted-to-web-site-14-oct-2011.pdf?sfvrsn=0>); and
3. successfully propose and defend a dissertation before a five-member committee constituted as above in this chart.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years (<http://grad.wisc.edu/acadpolicy/#fiveyearrule>) after passing the preliminary examination may be required to take and pass another preliminary examination to be readmitted to candidacy.

Within the department, completion of required courses and passing preliminary exams within three years of starting the Ph.D. program is considered satisfactory progress. See the program handbook (<http://kinesiology.education.wisc.edu/docs/kinesiology-documents/grad-program-pols-proceeds-manual-posted-to-web-site-14-oct-2011.pdf?sfvrsn=0>) for more information.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Admission to the M.S. and Ph.D. graduate programs requires satisfactory completion of the department's general prerequisite courses, listed below, or their equivalent. A degree in occupational therapy fulfills the department's prerequisites for occupational science admission. Students lacking some prerequisite courses may be considered for admission with 'deficiencies.' The deficiencies must be made up during (or before) the student's graduate studies, but the student retains eligibility for departmental financial support. Generally, deficiencies may not exceed 12 credits, and if they do, normally the student would enroll as a nondegree Special student or make up the deficiencies in some other way before graduate admission. Graduate students in Kinesiology are given priority for assistantship support from department funds, and students from other departments are not supported by department funds unless there are no eligible students in the Kinesiology department. Individual specialization areas may have specific course requirements in addition to the following department prerequisite courses. Please contact the department or see the web site for detailed information.

Code	Title	Credits
<b>Prerequisite courses and credits (or courses to be taken as deficiencies):</b>		
CHEM 103	General Chemistry I	4

ANATOMY/ KINES 328	Human Anatomy	3
ANATOMY/ KINES 329	Human Anatomy-Kinesiology	2
PHYSIOL 335	Physiology	5
<b>Select two of the following courses, or equivalents:</b>		
KINES 314	Physiology of Exercise	4
KINES 315	Assessment and Research in Physical Activity Pedagogy	3
KINES 318	Biomechanics of Human Movement	3
KINES 330	Research in Kinesiology	2
KINES 350	Introduction to Exercise Psychology	3
KINES 360	Lifespan Motor Development	3
KINES 361	Motor Learning and Performance	3

For admission, the Graduate School requires, as does the Kinesiology department, a minimum 3.0 GPA (on a 4.0=A scale) on the last 60 semester hours (or equivalent) of undergraduate coursework. An applicant must submit official Graduate Record Exam (GRE) scores, academic transcripts from each institution attended, a minimum of three letters of recommendation, and a statement of reasons for graduate study. The statement should name the applicant's intended area(s) of specialization and provide specific details on why the applicant names the area(s). Faculty in the intended research specialization(s) will decide whether the applicant is acceptable for the graduate program in the Department of Kinesiology. If a professor in the area of specialization agrees to serve as the prospective student's advisor, then the department's graduate office recommends the applicant for admission to the Graduate School. A committee reviews, and an individual advisor is not required for, nonthesis admissions. Please consult the kinesiology website (<http://www.education.wisc.edu/kinesiology>) for further details of these requirements and procedures.

All doctoral students in the Department of Kinesiology must satisfy the Ph.D. general field requirement by completing at least two graduate-level kinesiology courses of at least 2 credits each (4–6 credits total) at UW–Madison, in two different areas outside the student's area of specialization. These courses must be completed on the UW–Madison campus and must not have been used to fulfill an undergraduate deficiency or requirements for the master's degree. A Ph.D. minor is optional.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate academic mastery in at least one of the broad areas of specialization represented in the Department of Kinesiology.
- Students will demonstrate a broad understanding of major current and past theories, research findings, methodologies, and techniques in their area of specialization both orally and in writing.
- Students will retrieve and examine scientific literature, evaluate evidence for and against hypotheses, identify knowledge gaps, strengths and weaknesses in existing literature, synthesize knowledge, and develop conclusions.
- Students will formulate ideas, concepts, designs and/or techniques beyond the current boundaries of knowledge with their area of specialization.

- Students will demonstrate a broad knowledge of the field of kinesiology extending beyond their area of specialization.
- Students will develop and complete original research that makes a substantive contribution in advancing their area of specialization.
- Students will develop testable hypotheses and predictions for their own realistic and feasible research projects.
- Students will conduct independent research and analyze and interpret resulting data.
- Students will clearly communicate their ideas in both oral and written form through the preparation and defense of a dissertation.

## PROFESSIONAL CONDUCT

- Students will foster ethical and professional conduct.
- Students will use scientific rigor when designing experiments, collecting and analyzing data, interpreting and reporting results.

## PEOPLE

### KINESIOLOGY

**Faculty:** Professors Edwards (chair), Cook, Diffie, Koltyn, Schrage; Associate Professors Benedict, Eldridge, Gruben, Larson, Mason, van Kan; Assistant Professors Ausderau, Barnes, Bell, Hornberger, Pickett, Travers

### OCCUPATIONAL THERAPY

**Faculty:** Professors Benedict (OT program coordinator), Edwards; Associate Professor Larson; Assistant Professors Ausderau, Pickett, Travers. Additional instructors are listed here (<https://kinesiology.education.wisc.edu/occupational-therapy-homepage/people-of-ot>).

## OCCUPATIONAL THERAPY, M.S.

The occupational therapy program resides in the Department of Kinesiology and offers two graduate professional programs, an entry-level master of science (MS-OT) and a post-professional doctor of occupational therapy (OTD (p. 469)). Occupational therapists interested in pursuing a Ph.D. may also apply to the occupational science track of the Ph.D. in Kinesiology (p. 464). The purpose of the graduate program is to prepare clinicians, researchers, and teachers who possess a solid foundation in both the theoretical and applied aspects of the disciplines of occupational therapy and science.

The M.S. program is a two-year professional program designed to prepare students for practice. It is accredited by the Accreditation Council on Occupational Therapy Education (ACOTE (<http://www.aota.org/education-careers/accreditation.aspx>)). At the master's level, supervised fieldwork experiences with children and adults are provided in a variety of settings. This program meets the requirements for OTR certification set by the National Board for Certification of Occupational Therapy (NBCOT (<http://www.nbcot.org>)).

The post-professional OTD program is a part-time, structured, predominantly online curriculum serving occupational therapist's need for distance access and flexibility in acquiring advanced practice skills. The OTD program trains occupational therapists to become visionary leaders, engage in inter-professional education and practice, and facilitate research translation.

The Ph.D. program in kinesiology–occupational science track provides relevant classroom and laboratory experiences for the scholar–researcher interested in occupational science. The academic program consists of coursework within the Department of Kinesiology and in related areas such as psychology, statistics, population health, engineering, or education. Students completing the program will be prepared for careers as university professors and researchers. For further information about this degree, see Occupational Science (<https://kinesiology.education.wisc.edu/academics/grad-program/occupational-sci/program>) on the department website.

A bridge program can be designed for students who wish to pursue entry-level professional training and further advanced graduate study at the OTD or Ph.D. level. Such students follow a modified sequence of coursework, fieldwork training, and research experience in order to satisfy all academic and certification requirements.

## COURSE INFORMATION

Information about the MS-OT curriculum design, course sequence, and course descriptions can be found here (<https://kinesiology.education.wisc.edu/ot/academics/msot/curric>).

## FUNDING

Financial assistance, sometimes available to graduate students in occupational therapy, consists of scholarships, fellowships, and teaching, project or research assistant positions. Financial assistance is limited; opportunities vary by program and from year to year. Students enrolled in the OTD program are not permitted to accept teaching assistantships, project assistantships, research assistantships, or other appointments that would result in a tuition waiver. Students who are considering applying for financial support should see the OT program M.S. or OTD webpages (<http://kinesiology.education.wisc.edu/ot/about>) for further information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

61 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

50% of degree course work (31 credits out of 61 total credits) must be completed in graduate level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the

university's Course Guide (<http://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/max/render.uP?pCp>).

## PRIOR COURSEWORK REQUIREMENTS: GRAD WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 15 credits of graduate course work from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between special and graduate tuition), students are allowed to count no more than 15 credits of course work numbered 300 or above taken in UW–Madison University Special student status. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

The MS–OT has a prescribed curriculum of 61 credits, with potential for electives. See Curriculum (<http://kinesiology.education.wisc.edu/ot/academics/ms-in-occupational-therapy-msot/curriculum/>) on the OT website.

## OVERALL GRADUATE GPA REQUIREMENT

Minimum 3.00 GPA required.

## OTHER GRADE REQUIREMENTS

The Graduate School requires students maintain a graduate grade point average (GPA) of 3.00 (on a 4.00 scale) for courses numbered 300 and above (excluding research) to receive a degree. Conditions for probationary status may require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School. See Probation (<http://grad.wisc.edu/acadpolicy/#probation>) on the Graduate School website.

## ADVISOR / COMMITTEE

All students must have an assigned advisor to meet UW information management needs, and accordingly, and of its own volition, the department assigns an advisor to each student. Assigned advisors in the M. S. in Occupational Therapy (MS–OT) program are graduate research or clinical faculty. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

## ASSESSMENT AND EXAMINATIONS

No formal examination specific to the MS is required. Curricular requirements (all didactic courses) must be passed, in conformity with GPA and grad requirements, above.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

Level II fieldwork must be completed within 24 months of completion of coursework.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Applicants for all graduate programs must complete a UW–Madison Graduate School application (<http://grad.wisc.edu/admissions/process>).

## M.S. IN OCCUPATIONAL THERAPY (PROFESSIONAL)

Admission to the entry-level professional program in occupational therapy requires:

- a bachelor's degree (or equivalent) from a regionally accredited school of higher education by the start of the program
- transcripts from each college, university, or technical college attended showing work completed and in progress
- Graduate Record Exam (GRE) scores
- documentation of paid or volunteer experience in at least two different settings serving persons across the lifespan with physical, behavioral or mental health disabilities
- direct observation of occupational therapists, or Certified Occupational Therapy Assistants, providing services is highly recommended
- a minimum of three letters of recommendation
- a personal statement responding to prompts provided on the graduate application page
- at least a "C" or better in the following prerequisite courses or their equivalent:

Code	Title	Credits
One of the following:		3
HDFS 362	Development of the Young Child	
ED PSYCH 320	Human Development in Infancy and Childhood	
PSYCH 460	Child Development	
HDFS 363	Development from Adolescence to Old Age <sup>1</sup>	3
PSYCH 405	Abnormal Psychology	3-4
ANATOMY/ KINES 328	Human Anatomy	3
PHYSIOL 335	Physiology	5

Applicants may complete 6–8 credits (two semesters) of combined anatomy and physiology (with lab) to fulfill both the anatomy and physiology prerequisites

<sup>1</sup> Applicants who complete a lifespan/human development course should complete a second course in child or adult development.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### FOUNDATIONAL KNOWLEDGE

- Demonstrate an understanding of the physical, psychological and contextual substrates of human occupation in typical and nontypical development.
- Discuss the role of personal and environmental factors on involvement in daily activities and community participation.
- Critically examine and apply theories associated with the science of human occupation and models of interprofessional practice to service delivery.
- Demonstrate knowledge of one's own role and those of other professions to appropriately assess and address the needs of clients and populations served.

#### SCIENTIFIC INQUIRY AND THEORY DEVELOPMENT

- Articulate current problems facing the profession of occupational therapy in an interprofessional context with respect to theory, knowledge and practice.
- Identify and critique current knowledge, theories and evidence to inform practice.
- Demonstrate necessary skills for designing a scholarly proposal that includes a research question, relevant literature, samples, design, measurement and data analysis.
- Participate in scholarly activities that evaluate professional practice, service delivery, and/or professional issues.

#### PRACTICE REASONING AND DECISION MAKING

- Appropriately assess clients' participation in daily life activities and employ an interprofessional approach to determining the clients' needs within the context of family and society.
- Identify factors within the environment that influence participation in home and community life.
- Plan for discharge in collaboration with the client and family and terminate occupational therapy when appropriate.

### PROFESSIONAL CONDUCT

- Articulate the values of the occupational therapy profession.
- Work with individuals of other professions to maintain a climate of mutual respect and shared values.
- Describe the varied roles of the occupational therapist as practitioner, educator, researcher, and entrepreneur.
- Establish appropriate therapeutic relationships with individuals, groups, organizations and systems.
- Use effective interpersonal communication and demonstrate effective and culturally sensitive group communication.
- Demonstrate use of safety precautions with the client during the process of practice.

6-8

- Demonstrate knowledge of legal and ethical issues related to care in health, education, and community settings.

## PEOPLE

**Faculty:** Professors Benedict (OT Program Coordinator), Edwards; Associate Professor Larson; Assistant Professors Ausderau, Pickett, Travers. Additional instructors are listed here (<https://kinesiology.education.wisc.edu/occupational-therapy-homepage/people-of-ot>).

## OCCUPATIONAL THERAPY, OTD

The occupational therapy program resides in the Department of Kinesiology and offers two graduate professional programs, an entry-level master of science (MS–OT (p. 467)) and a post-professional doctor of occupational therapy (OTD). Occupational therapists interested in pursuing a Ph.D. may also apply to the occupational science track of the Ph.D. in Kinesiology (p. 464). The purpose of the graduate program is to prepare clinicians, researchers, and teachers who possess a solid foundation in both the theoretical and applied aspects of the disciplines of occupational therapy and science.

The M.S. program is a two-year professional program designed to prepare students for practice. It is accredited by the Accreditation Council on Occupational Therapy Education (ACOTE (<http://www.aota.org/education-careers/accreditation.aspx>)). At the master's level, supervised fieldwork experiences with children and adults are provided in a variety of settings. This program meets the requirements for OTR certification set by the National Board for Certification of Occupational Therapy (NBCOT (<http://www.nbcot.org>)).

The post-professional OTD program is a part-time, structured, predominantly online curriculum serving occupational therapist's need for distance access and flexibility in acquiring advanced practice skills. The OTD program trains occupational therapists to become visionary leaders, engage in inter-professional education and practice, and facilitate research translation.

The Ph.D. program in kinesiology–occupational science track provides relevant classroom and laboratory experiences for the scholar–researcher interested in occupational science. The academic program consists of coursework within the Department of Kinesiology and in related areas such as psychology, statistics, population health, engineering, or education. Students completing the program will be prepared for careers as university professors and researchers. For further information about this degree, see Occupational Science (<https://kinesiology.education.wisc.edu/academics/grad-program/occupational-sci/program>) on the department website.

A bridge program can be designed for students who wish to pursue entry-level professional training and further advanced graduate study at the OTD or Ph.D. level. Such students follow a modified sequence of coursework, fieldwork training, and research experience in order to satisfy all academic and certification requirements.

## COURSE INFORMATION

The OTD course sequence and descriptions can be found here (<https://merit-www.education.wisc.edu/otd/academics/curriculum>).

## FUNDING

Financial assistance, sometimes available to graduate students in occupational therapy, consists of scholarships, fellowships, and teaching, project or research assistant positions. Financial assistance is limited; opportunities vary by program and from year to year. Students enrolled in the OTD program are not permitted to accept teaching assistantships, project assistantships, research assistantships, or other appointments that would result in a tuition waiver. Students who are considering applying for financial support should see the OT program M.S. or OTD webpages (<http://kinesiology.education.wisc.edu/ot/about>) for further information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

OTD

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

64 credits (34 beyond the M.S.)

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

50% of degree course work (32 credits out of 64 total credits) must be completed in graduate level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://public.my.wisc.edu/portal/f/u12411s4/p/CourseGuide-Browse-Courses.u12411n31/max/render.uP?pCp>).

### PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count up to 30 credits of graduate coursework from other institutions. Coursework should be less than five years old to be considered, additional justification and/or documentation are needed for work taken between five and ten years. Work more than ten years old will not be considered.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNDERGRADUATE

No undergraduate coursework will be allowed to count toward OTD requirements.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between Special and graduate tuition), students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison

University Special student. These credits are considered part of the total allowable credits available for a student to transfer. Coursework should be less than five years old to be considered; additional justification and/or documentation is needed for work taken between five and ten years.

Work more than ten years old will not be considered.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

The OTD has a prescribed curriculum of 64 credits. See Curriculum (<https://kinesiology.education.wisc.edu/otd/academics/otd-curriculum>) on the OT website.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Breadth is provided via interdisciplinary training (minor requirement waived).

### OVERALL GRADUATE GPA REQUIREMENT

Minimum 3.00 GPA required.

### OTHER GRADE REQUIREMENTS

The Graduate School requires students maintain a graduate grade point average (GPA) of 3.00 (on a 4.00 scale) for courses numbered 300 and above (excluding research) to receive a degree. Conditions for probationary status may require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School. See Probation (<http://grad.wisc.edu/acadpolicy/#probation>) on the Graduate School website.

### ADVISOR

Every graduate student is required to have an advisor to meet UW information management needs, and accordingly, and of its own volition, the department assigns an advisor to each student. The advisor is a graduate or clinical faculty member.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis. The OTD Program Coordinator will advise students in the early stages of their studies. The advisor may also serve on the student's capstone project committee.

### ASSESSMENT AND EXAMINATIONS

Curricular requirements (all didactic courses) must be passed, in conformity with GPA and grad requirements, above. Capstone project proposal and final product must be reviewed and approved by a committee of graduate faculty per Graduate School policy.

### TIME CONSTRAINTS

Doctoral degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students

completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Applicants for all graduate programs must complete a UW–Madison Graduate School application (<http://grad.wisc.edu/admissions/process>).

## OTD (POST-PROFESSIONAL)

An official copy of a current state license to practice OT in the U.S. will be required for admission.

A minimum equivalency of 30 UW–Madison credit hours taken as a graduate student beyond the Bachelor's degree is also required. It is expected that most applicants will meet this requirement through having obtained a master's degree in occupational therapy or related field. Individuals with a bachelor's degree in OT may apply but will be required to complete graduate credits (as outlined on our website (<http://kinesiology.education.wisc.edu/otd/admissions/otd-credit-deficiencies>)) to meet any deficiencies.

In addition, applicants must submit a personal statement responding to prompts provided on the graduate application page; a current resume or CV; official transcripts per the instructions on the application page; and letters of recommendation (two required, one additional optional) from professors, co-workers, supervisors, and/or other professionals who can speak to the applicant's capacity to be an adult learner, potential for leadership, and capabilities to succeed as a graduate student.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### FOUNDATIONAL KNOWLEDGE

- Demonstrate in-depth knowledge of the evolution of the profession, the social and global forces influencing practice, delivery models, policies, and systems, including interprofessional and emerging areas of practice.
- Articulate and apply underlying theories, concepts and techniques of occupational therapy intervention to health promotion and well-being for the prevention of disease and dysfunction.

#### SCIENTIFIC INQUIRY AND THEORY DEVELOPMENT

- Articulate the knowledge, roles and practices of other professions with whom occupational therapists typically engage in practice.
- Formulate systems to gather, analyze and interpret data from a practice setting.
- Translate evidence into best practice for the continued development of the profession.
- Develop and implement an interprofessional, scholarly capstone project that addresses an identified service system, intervention or programmatic problem, relates theory to practice and demonstrates synthesis of advanced knowledge in a practice area.
- Demonstrate an understanding of the process for locating and securing grants and how grants can serve as a fiscal resource for scholarly and programmatic activities.

- Evaluate the outcomes of the capstone project and communicate findings to an interprofessional audience in a clear, understandable manner through a peer-reviewed report or presentation.

### PRACTICE REASONING AND DECISION MAKING

- Empirically monitor client progress and treatment efficacy in practice.
- Identify and apply appropriate tools for measuring practice outcomes at the individual and systems level.
- Synthesize current knowledge, available evidence and responses to interventions to inform new approaches to practice problems.
- Demonstrate the skills necessary to lead and manage an interprofessional team.

### PROFESSIONAL CONDUCT

- Demonstrate commitment to professional growth through the creation, implementation and monitoring of a career development plan.
- Demonstrate active involvement in professional development, leadership, and advocacy for the benefit of constituents and the profession.

## PEOPLE

**Faculty:** Professors Benedict (OT Program Coordinator), Edwards; Associate Professor Larson; Assistant Professors Ausderau, Pickett, Travers. Additional instructors are listed here (<https://kinesiology.education.wisc.edu/occupational-therapy-homepage/people-of-ot>).

# LA FOLLETTE SCHOOL OF PUBLIC AFFAIRS

**Administrative Unit:** La Follette School of Public Affairs

**College/School:** College of Letters & Science

**Admitting Plans:** MPA

**Degrees Offered:** MPA in International Public Affairs; MPA in Public Affairs

**Minors and Certificates:** Doctoral Minor in Public Affairs

The mission of the Robert M. La Follette School of Public Affairs is to improve the design of public policy and the practice of governance. Faculty conduct innovative policy and management research and train, mentor and educate students to work in public affairs in the United States and around the world. The school's faculty are economists, political scientists, sociologists, and public affairs scholars who are experts in government finance, social and poverty policy, education policy, emergency management, international dimensions of poverty, environmental regulation, international trade policy, program evaluation, the policy making process, public sector performance, and health care.

## MASTER OF PUBLIC AFFAIRS (MPA)

Through the master of public affairs (MPA) degree program, students learn the skills needed to transform an interest in public affairs into serious careers. The program offers rigorous professional training across several disciplines and prepares graduates to take positions as managers and analysts in government at all levels, in the rapidly growing nonprofit sector, and in private consulting firms.

## LAW AND PUBLIC AFFAIRS

Increasingly, careers in the federal, state and local governments as well as nonprofit organizations and private sector businesses require an understanding of public administration, policy analysis, and public affairs, as well as law. Many students choose to pursue the dual law and public affairs degree because of their interest in these organizations. A total of 111 credits, 75 credits at the Law School and 36 credits at the La Follette School of Public Affairs, are required for the dual degree program. The law and public affairs program generally takes four years to complete.

## MASTER OF PUBLIC AFFAIRS AND MASTER OF PUBLIC HEALTH (MPA/MPH)

The master of public affairs and master of public health dual degree program prepares students for careers as policy analysts and public managers in the increasingly important area of health care. Dual degree MPA/MPH students develop a firm foundation in policy analysis and public management offered by public affairs experts and a deep substantive knowledge in public health that can only be offered through a program in the School of Medicine and Public Health.

## NEUROSCIENCE AND PUBLIC AFFAIRS OR INTERNATIONAL PUBLIC AFFAIRS (PH.D./MPA OR MIPA)

This dual degree program leads to the Ph.D. in neuroscience (awarded by the neuroscience training program) and a master of public affairs degree, (awarded by the Robert M. La Follette School of Public Affairs). The program in neuroscience and public affairs will educate students who wish to use a critical understanding of neuroscience to inform public policy. In coming decades, advances in brain science promise to fundamentally transform our understanding of the human mind, behavior,

and mental health, posing new challenges for policy in areas such as education, health, welfare, and security. Graduates pursue academic and policy careers.

## PUBLIC AFFAIRS AND URBAN AND REGIONAL PLANNING (MPA OR MIPA AND M.S. IN URBAN AND REGIONAL PLANNING)

A double degree in planning and public affairs is available from the Department of Planning and Landscape Architecture the La Follette School of Public Affairs. The three-year, 66-credit program culminates in an M.S. degree in urban and regional planning and a master of public affairs or master of international public affairs degree. Admission must be secured from both departments, though application for admission need not be simultaneous. Students may apply for both programs using the same graduate school electronic application.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- International Public Affairs, MIPA (p. 472)
- Public Affairs, Doctoral Minor (p. 474)
- Public Affairs, MPA (p. 474)

## PEOPLE

**Faculty:** Professors Blank, Cancian, Chinn, Haveman, Herd, Meyer, Moynihan (director), Smeeding, Weimer, Wolfe, Yackee; Associate Professors: Collins, Copelovitch, Fletcher, Nemet, Wallace; Assistant Professors: O'Brien, Tjernstrom

## INTERNATIONAL PUBLIC AFFAIRS, MIPA

Through rigorous professional training across disciplines, the master of international public affairs (MIPA) degree program prepares students from the United States and around the world to engage in governance in ways that meet the challenges of globalization. Graduates work in government at home and abroad, in businesses involved in the global economy, in non-governmental agencies, in consulting firms analyzing implications of international policies, and in many other areas. Students can focus on environmental policy, trade and finance, economic development, a specific region and language, or propose an alternate focus utilizing courses from public affairs and other graduate departments.

Some students choose to pursue a dual degree with the Law School, a double degree with the Department of Urban and Regional Planning, or a dual degree with the School of Medicine and Public Health's neuroscience Ph.D. program. MIPA and MPA students can also pursue a graduate/professional certificate in energy analysis and policy, or in transportation management and policy.

## FUNDING

La Follette School fellowships and scholarships are offered on a competitive basis to all public affairs and international public affairs applicants. Priority consideration is given to applications received



by January 1. Applications are accepted after this date on a rolling admission basis.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

MIPA, with available accelerated track

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

MIPA: 42 credits

MIPA accelerated track: 36 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

MIPA: 16 credits

MIPA accelerated track: 36 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (21 out of 42 total credits) must be completed in graduate-level coursework. For MIPA accelerated track, 21 of 36 must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements. This work does not appear on UW-Madison transcript nor count toward graduate career GPA.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Up to 7 credits from a UW-Madison undergraduate degree are allowed to count toward the degree. This work will not appear on the student's graduate transcript. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

MIPA: 13 credits are advised if a student hold other appointments on campus. Students need advisor approval to take 15 credits.

MIPA accelerated track: 15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

For program-specific courses, see the MIPA website (<http://www.lafollette.wisc.edu/degreeprograms/mipa.html>).

### OVERALL GRADUATE GPA REQUIREMENT

3.0 GPA required

### OTHER GRADE REQUIREMENTS

Students must earn a B or above in all core curriculum coursework.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR/COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENTS AND EXAMINATIONS

Requirements are determined by the program.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

No language requirement.

## ADMISSIONS

Applicants for the MIPA program should submit transcripts showing undergraduate performance with at least the equivalent of a 3.0 G.P.A. (on a 4.0 scale), statement of purpose, GRE scores, and a resume. Preferred prerequisite courses are introductory microeconomics and introductory

macroeconomics, an introductory course in calculus or statistics, a comparative politics or international relations course, and language study. Applicants without this background may be admitted with the understanding that these courses will be completed before beginning the program.

Every applicant whose first language is not English and whose complete four-year undergraduate instruction was not in English, must provide official scores from the Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS) or the Michigan English Language Assessment Battery (MELAB). The applicant must provide at least one of these minimum standardized test scores: TOEFL computer-based test score 237, TOEFL internet-based test score 92, IELTS score 7, or MELAB 82. Even if a student has the minimum score, the program can require the admitted applicant to take the on-campus ESL exam and register for any recommended English-as-a-second-language course(s) in the first semester of graduate study.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- (Knowledge) Students will demonstrate understanding of major current and past policy debates, research findings, and analytical methodologies in each of the following core areas: microeconomic policy analysis, macroeconomic policy analysis, quantitative tools for policy analysis, policy analysis, and international governance.
- (Knowledge) Students will demonstrate critical thinking skills. They will retrieve and examine the policy literature and evaluate evidence for and against hypotheses, identify knowledge gaps, strengths and weaknesses in existing literature, synthesize knowledge, and develop conclusions.
- (Applied research skills) Students will read, comprehend, and effectively summarize policy research and policy-relevant academic research.
- (Applied research skills) Students will effectively summarize data for a general (nonacademic) or policy audience.
- (Applied research skills) Students will demonstrate competency in methods of inferential statistics including those associated with multivariate regression models.

### PROFESSIONAL CONDUCT

- (Professional and ethical conduct) Students will identify and appropriately respond to scenarios involving the ethical and professional responsibilities of public administration.
- (Professional and ethical conduct) Students will demonstrate the ability to maintain human subjects protections when designing studies, collecting data and reporting results.
- (Professional and ethical conduct) Students will know and adhere to high levels of professional conduct, ethical decision-making and legal and regulatory compliance.
- (Professional and ethical conduct) Students will demonstrate the ability to maintain fidelity to objective social science-based research methods.

### ADDITIONAL LEARNING GOALS

- (Communication) Students will communicate in clear written language: a real-world policy problem, relevant scholarly studies and

practical applications, a policy-analytic method to investigate the problem, and client-oriented advice to mitigate the problem.

- (Communication) Students will communicate substance of point 1 highly concisely and in language understandable to a non-specialist.
- (Communication) Students will communicate substance of point 2 orally.
- (Professional skills and career preparation) Students will develop effective job-seeking tools and utilize job-seeking techniques.
- (Professional skills and career preparation) Students will complete high quality group projects, including demonstration of effective project management and teamwork.

## PEOPLE

**Faculty:** Professors Blank, Cancian, Chinn, Haveman, Herd, Meyer, Moynihan (director), Smeeding, Weimer, Wolfe, Yackee; Associate Professors: Collins, Copelovitch, Fletcher, Nemet, Wallace; Assistant Professors: O'Brien, Tjernstrom

## PUBLIC AFFAIRS, DOCTORAL MINOR

### PUBLIC AFFAIRS, MPA

Through the master of public affairs (MPA) degree program, students learn the skills needed to transform an interest in public affairs into serious careers. The program offers rigorous professional training across several disciplines and prepares graduates to take positions as managers and analysts in government at all levels, in the rapidly growing nonprofit sector, and in private consulting firms.

The curriculum builds on foundational courses taught by core La Follette School faculty. Students choose from a wide range of courses to meet individual interests and career goals with guidance from a program and faculty advisor. A student can focus on social and poverty policy, environmental policy, energy policy, education policy, urban planning, health policy, policy analysis, or public management, or propose an alternate focus utilizing courses from public affairs and other graduate departments.

Students occasionally find it advantageous to earn two graduate degrees concurrently. The La Follette School offers a double degree program with the Department of Urban and Regional Planning, a dual degree with the Law School, and with two programs in the School of Medicine and Public Health—neuroscience (Ph.D.) and public health (MPH). MIPA and MPA students can pursue a graduate/professional certificate in energy analysis and policy and/or in transportation management and policy.

## FUNDING

La Follette School fellowships and scholarships are awarded on a merit basis to all public affairs and international public affairs applicants. Priority consideration is given to applications received by the priority admission date January 1. Applications are accepted after this date on a rolling admission basis.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

MPA, with available accelerated track

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

MPA: 42 credits

MPA with accelerated track: 36 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

MPA: 16 credits

MPA with accelerated track; 36 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (21 out of 42 total credits) must be completed in graduate-level coursework. For MPA accelerated track, 21 of 36 must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements. This work does not appear on UW–Madison transcript nor count toward graduate career GPA.

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#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

MPA: 13 credits are advised if a student hold other appointments on campus. Students need advisor approval to take 15 credits.

MPA with accelerated track: 15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

For program-specific courses, see Master of Public Affairs (<http://www.lafollette.wisc.edu/degreeprograms/mpa.html>) on the school website.

### OVERALL GRADUATE GPA REQUIREMENT

3.0 GPA required

### OTHER GRADE REQUIREMENTS

Students must earn a B or above in all core curriculum coursework.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR/COMMITTEE

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An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENTS AND EXAMINATIONS

Requirements are determined by the program.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

No language requirement.

## ADMISSIONS

Applicants to the master of public affairs must submit official transcripts showing at least a 3.0 undergraduate GPA (on a 4.0 scale), three references, a resume, a statement of purpose and Graduate Record Exam (GRE) scores. Preferred prerequisite courses are an introductory course in microeconomics, an introductory course in calculus or statistics, and an introductory American government course. Applicants without this background may be admitted with the understanding that these courses will be completed before beginning the program.

Every applicant whose first language is not English and whose full-four-year undergraduate instruction was not in English, must provide official scores from the Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS) or the Michigan English Language Assessment Battery (MELAB). The applicant must provide at least one of these minimum standardized test scores: TOEFL computer-based test score 237, TOEFL internet-based test score 92, IELTS score 7, or MELAB 82. Even if a student has the minimum score, the program can require the admitted applicant to take the on-campus ESL exam and register for any recommended English-as-a-second-language course(s) in the first semester of graduate study.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- (Knowledge) Students will demonstrate understanding of major current and past policy debates, research findings, and analytical methodologies in each of the following core areas: microeconomic policy analysis, quantitative tools for policy analysis, policy analysis, the policymaking process, and public management.
- (Knowledge) Students will demonstrate critical thinking skills. They will retrieve and examine the policy literature and evaluate evidence for and against hypotheses, identify knowledge gaps, strengths and weaknesses in existing literature, synthesize knowledge, and develop conclusions.
- (Applied Research Skills) Students will read, comprehend, and effectively summarize policy research and policy-relevant academic research.
- (Applied Research Skills) Students will effectively summarize data for a general (non-academic) or policy audience.
- (Applied Research Skills) Students will demonstrate competency in methods of inferential statistics including those associated with multivariate regression models.

### PROFESSIONAL CONDUCT

- (Professional and Ethical Conduct) Students will identify and appropriately respond to scenarios involving the ethical and professional responsibilities of public administration.
- (Professional and Ethical Conduct) Students will demonstrate the ability to maintain human subjects protections when designing studies, collecting data and reporting results.
- (Professional and Ethical Conduct) Students will know and adhere to high levels of professional conduct, ethical decision-making and legal and regulatory compliance.
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### ADDITIONAL LEARNING GOALS

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## PEOPLE

**Faculty:** Professors Blank, Cancian, Chinn, Haveman, Herd, Meyer, Moynihan (director), Smeeding, Weimer, Wolfe, Yackee; Associate Professors: Collins, Copelovitch, Fletcher, Nemet, Wallace; Assistant Professors: O'Brien, Tjernstrom

## LANGUAGE INSTITUTE

**Administrative Unit:** Language Institute

**College/School:** College of Letters & Science

**Admitting Plans:** Ph.D.

**Degrees Offered:** Ph.D.

**Minors and Certificates:** Doctoral Minor

Second language acquisition or SLA is the systematic study of learning, using, and sometimes losing any form of language beyond the mother tongue. Research in SLA is a burgeoning field because today there are more people who use at least two languages than there are monolinguals. For individual learners and for every community in diaspora, second language acquisition is an experience that challenges their knowledge of language, their understanding of different cultures, and their personal identity. These challenges are studied by SLA researchers, scholars whose training is in a variety of fields—linguistics, psychology, sociology, education, anthropology, and communication arts—a variety that makes the study of SLA richly interdisciplinary.

The Ph.D. program in second language acquisition at the University of Wisconsin–Madison is a rigorous and coherently interdisciplinary academic program in a field that embodies the university’s mission to foster the study of globally important issues. In their coursework, students in the program learn from the experiences of a distinguished faculty in many departments and, in their dissertation research, students share with faculty the discovery of new knowledge. Students develop a thorough understanding of the many facets of SLA, including language pedagogy, the study of multilingualism, language acquisition and loss, and multilingual language use in contexts of education, the workplace, and the family. Through the program, students develop skills in research in the sociology and psychology of knowing two or more languages and in the linguistics of languages in contact. A Ph.D. in SLA opens the door to scholarly and professional careers as university faculty, directors of foreign language programs, educational policy makers, and multilingual specialists.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Second Language Acquisition, Doctoral Minor (p. 477)
- Second Language Acquisition, Ph.D. (p. 479)

## PEOPLE

**Faculty:** Professors Chavez (German), Evans-Romaine (Slavic Languages and Literature), Frantzen (Spanish and Portuguese), Hawkins (Curriculum and Instruction), Mori (East Asian Languages and Literature), Tochon (Curriculum and Instruction), Young (English); Associate Professors Allen, Geyer (East Asian Languages and Literature), Stafford (Spanish and Portuguese), Pacheco (Curriculum and Instruction), Thompson (African Languages and Literature); Assistant Professor Cho

## SECOND LANGUAGE ACQUISITION, DOCTORAL MINOR

The Option A minor in second language acquisition (SLA) offers graduate students both a theoretical and a practical background in the increasingly important area of SLA. After completing the minor, students will be prepared to understand research in SLA and to develop teaching curricula based on principles of second language learning and teaching.

Student must come to the SLA minor with a minimal background in second language acquisition and learning methodology, and in linguistics, obtained through the listed prerequisite courses or their equivalents.

## REQUIREMENTS

**Note:** In spring 2015, the SLA steering committee approved new requirements for the SLA minor, effective fall 2015. Those students who began the minor before fall 2015 have the option to complete the old requirements or the new. See pre–fall 2015 requirements ([http://www.sla.wisc.edu/sites/sla.wisc.edu/files/SLA-Minor-Requirements\\_2014-15.docx](http://www.sla.wisc.edu/sites/sla.wisc.edu/files/SLA-Minor-Requirements_2014-15.docx)).

The SLA minor consists of 9 credits: a required course, and two elective courses, which must be taken outside the student’s home department. Students without a background in linguistics and language pedagogy are encouraged to take introductory linguistics and teaching methodology courses before starting the SLA minor. Students may transfer up to 3 credits from prior graduate work, upon approval.

## NEW REQUIREMENTS (EFFECTIVE FALL 2015)

All students are required to take ENGL 318 Second Language Acquisition or CURRIC 673 Learning Second Language and Literacies. Students also choose **two courses** (from outside of their home departments) **from the approved SLA list** below. With approval of the SLA minor advisor, students may count up to 3 credits (one course) of prior graduate study toward the minor.

The courses for the SLA minor may be taken in any appropriate sequence.

The total for the minor is thus three courses (9 credits). The two elective courses should be taken outside the student’s home department. (Exceptions can be made for students with a literature focus.)

Students wishing to minor in SLA should first contact the relevant SLA committee member (<http://sla.wisc.edu/people/faculty>) in their department who will refer them to the SLA minor advisor. Students declaring the minor are required to meet with Professor Naomi Geyer, (email: [nfgeyer@wisc.edu](mailto:nfgeyer@wisc.edu)) SLA minor advisor, before registering for SLA minor courses.

For more information on the minor for doctoral students, see the Graduate School policy on minors (<https://grad.wisc.edu/acadpolicy/#minors>).

## REQUIRED COURSES FOR THE SLA DOCTORAL MINOR

SLA doctoral minors must complete one of two courses:

- ENGL 318 Second Language Acquisition or
- CURRIC 673 Learning Second Language and Literacies

Students declaring the SLA minor who wish to take either of these courses should notify the instructor and the SLA minor advisor of their intention as early as possible so that a slot in the course may be reserved.

## TRANSFERRING CREDITS FROM PRIOR GRADUATE WORK

With approval by the SLA minor advisor, students may count up to 3 credits of prior graduate study from outside UW–Madison. Typically a course syllabus (translated into English, if necessary, and with credit hours clearly stated) is required to determine whether the course can count toward the SLA doctoral minor.

## ELECTIVES

Students are required to take two courses (6 credits) outside of their home departments from the list of approved courses below. Students select courses for a balanced program according to individual interest. All courses must be approved by the SLA minor advisor, who will monitor the overall coherence of each student's minor program, with input from the student's departmental SLA advisor. Other courses can be considered, but require preapproval by the SLA Steering Committee. To be approved for the minor, courses must contain a foreign language or second language focus as evidenced by course material (e.g., syllabus or reading list), provided by the student to the SLA minor advisor.

### African Cultural Studies

- AFRICAN 701 Advanced Topics in African Linguistics\*

### Curriculum and Instruction (C&I)

- CURRIC 673 Learning Second Language and Literacies
- CURRIC 674 Advanced Methods in Teaching English as a Second Language
- CURRIC 675 General Seminar\*
- CURRIC 743 Educational Technology for Deep Language Learning\*\*
- CURRIC 964 Seminar in World Language Education
- CURRIC 975 General Seminar (with appropriate topic; see SLA PhD minor advisor for consent)

### English

- ENGL 414 Global Spread of English (Instructor and SLA advisor consent required.)
- ENGL 420 Topics in English Language and Linguistics
- ENGL 703 Research Methods in Composition Studies
- ENGL/SOC 710 Interaction Analysis: Talk as Social Organization
- ENGL 711 Research Methods in Applied Linguistics
- ENGL 713 Topics in Contemporary English Linguistics\*
- ENGL 715 Advanced Second Language Acquisition
- ENGL 905 Seminar-Topics in Applied English Linguistics\*

### French and Italian

FRENCH/ITALIAN 821 Issues in Methods of Teaching French and Italian \*/\*\*

### German

- GERMAN 727 Topics in Applied Linguistics\*

## Sociology

- SOC 735 Ethnomethodology & Conversation Analysis

## Spanish

(Note: Spanish courses are generally offered in Spanish; contact instructor)

- SPANISH 544 Contemporary Issues in Applied Spanish Linguistics
- SPANISH 630 Topics in Hispanic Linguistics (with appropriate topic)
- SPANISH 815 Seminar in Language: Modern Spanish (with appropriate topic)
- SPANISH 830 Seminar: The Spanish Grammatical Tradition (with appropriate topic)

\*Topics courses. Students should see the SLA Minor Advisor for approval of topics appropriate for the minor.

\*\*Courses must be taken for a total of 3 credits, in one or multiple enrollments.

## ADMISSIONS

### Administration

Prof. Cathy Stafford (<http://sla.wisc.edu/faculty/catherine-stafford>)(director): [cstafford@wisc.edu](mailto:cstafford@wisc.edu)

Contact Prof. Stafford for questions having to do with the academic program.

Wendy Johnson (<http://sla.wisc.edu/content/wendy-johnson>) (program coordinator): [wsjohnso@wisc.edu](mailto:wsjohnso@wisc.edu)

Contact Ms. Johnson with questions of a logistical or procedural nature.

Malliga Somasundaram (financial and payroll specialist): [msomasundara@wisc.edu](mailto:msomasundara@wisc.edu)

Contact Ms. Somasundaram for questions regarding fellowships, benefits, reimbursements, and all things financial.

### PhD Minor

Prof. Naomi Geyer (<http://sla.wisc.edu/faculty/naomi-geyer>)(PhD minor advisor): [nfgeyer@wisc.edu](mailto:nfgeyer@wisc.edu)

Students wishing to minor in SLA should first contact the relevant SLA committee member in their department who will refer them to the chair of the SLA minor program. Students declaring the minor are required to meet with the SLA Minor Advisor before registering for SLA minor courses.

### SLA Faculty and Academic Staff

Core SLA members advise, direct, or co-direct dissertations of students in the program. Their research focuses on Second Language Acquisition, as demonstrated in publications, presentations at research conferences, professional service activities, and/or graduate teaching.

**Affiliate Members** (<http://sla.wisc.edu/content/affiliate-faculty-and-academic-staff>)

Affiliate SLA faculty and academic staff teach courses related to SLA, co-advise dissertations, and may serve on administrative committees.

#### SLA Listserves

[uwsla-corefaculty@lists.wisc.edu](mailto:uwsla-corefaculty@lists.wisc.edu)

[uwsla-affiliatefaculty@lists.wisc.edu](mailto:uwsla-affiliatefaculty@lists.wisc.edu)

[uwsla-phdmajors@lists.wisc.edu](mailto:uwsla-phdmajors@lists.wisc.edu)

[uwsla-phdminors@lists.wisc.edu](mailto:uwsla-phdminors@lists.wisc.edu)

[uwsla-all@lists.wisc.edu](mailto:uwsla-all@lists.wisc.edu) (includes all SLA-affiliated students and faculty)

## PEOPLE

**Faculty:** Professors Chavez (German), Evans-Romaine (Slavic Languages and Literature), Frantzen (Spanish and Portuguese), Hawkins (Curriculum and Instruction), Mori (East Asian Languages and Literature), Tochon (Curriculum and Instruction), Young (English); Associate Professors Allen, Geyer (East Asian Languages and Literature), Stafford (Spanish and Portuguese), Pacheco (Curriculum and Instruction), Thompson (African Languages and Literature); Assistant Professor Cho

## SECOND LANGUAGE ACQUISITION, PH.D.

Second language acquisition or SLA is the systematic study of learning, using, and sometimes losing any form of language beyond the mother tongue. Research in SLA is a burgeoning field because today there are more people who use at least two languages than there are monolinguals. For individual learners and for every community in diaspora, second language acquisition is an experience that challenges their knowledge of language, their understanding of different cultures, and their personal identity. These challenges are studied by SLA researchers, scholars whose training is in a variety of fields—linguistics, psychology, sociology, education, anthropology, and communication arts—a variety that makes the study of SLA richly interdisciplinary.

The Ph.D. program in second language acquisition at the University of Wisconsin–Madison is a rigorous and coherently interdisciplinary academic program in a field that embodies the university's mission to foster the study of globally important issues. In their coursework, students in the program learn from the experiences of a distinguished faculty in many departments and, in their dissertation research, students share with faculty the discovery of new knowledge. Students develop a thorough understanding of the many facets of SLA, including language pedagogy, the study of multilingualism, language acquisition and loss, and multilingual language use in contexts of education, the workplace, and the family. Through the program, students develop skills in research in the sociology and psychology of knowing two or more languages and in the linguistics of languages in contact. A Ph.D. in SLA opens the door to scholarly and professional careers as university faculty, directors of foreign language programs, educational policy makers, and multilingual specialists.

## FUNDING

Students in the SLA program, depending on their qualifications, may receive financial support through several departments, programs, and institutes. Many students who minor in a foreign language or ESL work as graduate teaching assistants for the department in which that language is taught. Other students work as graduate project assistants for the Language Institute or other units on campus. In addition to these TA and PA positions, select SLA students receive university fellowships (including the Advanced Opportunity Fellowships) upon entry into the program or when working on their dissertations. If they meet the specific eligibility criteria, students may also compete, with the program's support, in other grant and fellowship competitions, such as Foreign Language and Area Studies (FLAS) Fellowships. Additional funding opportunities are included in the information for current students on the SLA website (<http://www.sla.wisc.edu/content/funding-resources>).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

36 credits coursework plus 9 dissertation credits, for a total of 45 credits.

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 out of 51 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions or the UW–Madison. Coursework earned ten years or more prior to admission to the doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Prior coursework from the UW–Madison undergraduate career may not be applied toward the program.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

Prior coursework from the UW–Madison University Special student career may not be applied toward the program.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

ENGL 318 Second Language Acquisition and ENGL 711 Research Methods in Applied Linguistics, and research methods: one course in qualitative and one in quantitative research methods chosen from an approved list

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete an emphasis totaling 12 credits. The emphasis is normally fulfilled by completion of an Option A or B minor; however, if the Option A minor is only 9 credits, the student must choose an additional, 3-credit course on a related topic. Students will submit their plan for completing the emphasis by the end of the first year.

## OVERALL GRADUATE GPA REQUIREMENT

3.0 GPA required

## OTHER GRADE REQUIREMENTS

Incompletes must be resolved by the end of the next fall or spring term in which the student is enrolled. In addition, all incompletes must be resolved before students may take any portion of the preliminary examination.

## PROBATION POLICY

Those students not meeting satisfactory progress requirements may be put on probation for a semester.

## ADVISOR / COMMITTEE

Students are required to meet with their advisor at least once each semester to review their progress, select courses, and to discuss any outstanding issues or questions.

## ASSESSMENTS AND EXAMINATIONS

Students must take preliminary exams within one semester of completing coursework.

In order to help identify possible funding sources, students whose first language is not English are required to take the SPEAK test, a test of spoken English administered by the Department of English, within the first semester.

## TIME CONSTRAINTS

Students whose first language is not English are required to take the SPEAK test within the first semester.

Students must submit plans for completing the emphasis requirement and the language requirement for approval by the steering committee within their first year of the program.

Students typically complete all of the coursework requirements within two years of enrolling in the Program. Students are required to complete

all coursework and fulfill the language requirement before taking the preliminary examinations.

Students must take the preliminary examination within one semester of completing coursework.

Graduate School regulations require Ph.D. candidates to defend their dissertation five years from the date of passing their preliminary examinations.

## LANGUAGE REQUIREMENTS

The SLA Ph.D. major requires oral as well as reading proficiency at the advanced level in two languages, including English. Students may not be recommended for preliminary exams until they have fulfilled both parts of the language requirement.

Typically, the student must demonstrate an advanced level of academic oral and reading proficiency in two languages prior to taking preliminary exams. A plan for meeting this requirement is developed by the student and advisor within the first semester of the student's program. The plan must be approved by the advisor and the SLA steering committee by the end of the first academic year.

## COURSES

For detailed information about course requirements, students should consult the SLA Student Handbook (<http://www.sla.wisc.edu/content/major-requirements>).

## ADMISSIONS

The SLA doctoral program requires a master's degree in a foreign language, English, applied linguistics, linguistics, or education. The SLA program requires GRE scores. The GRE examination must be taken within five years before your application to the SLA doctoral program. Please refer to the program website (<http://www.sla.wisc.edu/admissions>) for application deadlines, required application materials, and required modes of submitting these materials. In addition, general requirements for admission, stipulated by the graduate school (e.g., evidence of English proficiency for certain international students) apply.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### KNOWLEDGE

- Students will demonstrate a strong overall understanding of the scope of the discipline of SLA (e.g., the theories on which research in the field is based; the type of questions that researchers in SLA address; and the variety of techniques used to answer these questions).
- Students will demonstrate an in-depth understanding of theories and research findings related to their focal areas of interest.
- Languages: Students will demonstrate an advanced level of academic oral and reading proficiency in two languages, including English.
- Research: Students will develop and complete original research that advances a specific area of SLA research.
- Students will retrieve, evaluate, and interpret academic publications, and use this information to identify a gap in literature and to develop theoretical frameworks and research designs for their own research projects.



- Students will learn to design realistic and feasible research projects and to prepare necessary protocols.
- Students will collect data following relevant protocols and analyze/interpret the resulting data.
- Students will reflect on the procedures and results of their own projects to identify limitations and propose possible future studies.
- Students will present their research articulately and informatively to diverse audiences.
- Students will prepare manuscripts resulting from their independent research for publication in professional journals and other suitable venues.
- Students will be able to give and receive feedback orally and in writing.

## TEACHING

- Students will be able to design a course, evaluating the program's and students' needs and identifying suitable learning objectives, as well as materials, methods, and activities to reach the objectives.
- Students will create and execute lesson plans, making changes as they become necessary.
- Students will identify methods to evaluate their students' progress, and provide feedback and assistance, and/or readjust their approach, as needed.

## PROFESSIONAL CONDUCT

- Students will communicate effectively as a member of a professional community.
- Students will seek opportunities to engage in service to the program, the university and/or to the wider community.
- Students will understand responsibilities of researchers who work with human subjects and follow institutional and professional guidelines to adhere to a code of ethics.

## PEOPLE

**Faculty:** Professors Chavez (German), Evans-Romaine (Slavic Languages and Literature), Frantzen (Spanish and Portuguese), Hawkins (Curriculum and Instruction), Mori (East Asian Languages and Literature), Tochon (Curriculum and Instruction), Young (English); Associate Professors Allen, Geyer (East Asian Languages and Literature), Stafford (Spanish and Portuguese), Pacheco (Curriculum and Instruction), Thompson (African Languages and Literature); Assistant Professor Cho

## LAW—SCHOOL-WIDE

**Administrative Unit:** Law School

**College/School:** Law School

**Minors and Certificates:** Doctoral Minor in Law; Graduate/Professional Certificate in Consumer Health Advocacy

Students interested in pursuing a J.D. degree should contact the Law School Admissions Office (<http://law.wisc.edu/prospective/apply.html>).

Students interested in pursuing a J.D. degree in conjunction with a graduate degree should contact the Law School Admissions Office (<http://law.wisc.edu/prospective/apply.html>) and the graduate program of interest for more information. In addition, established dual degrees are offered with the Nelson Institute for Environmental Studies; Latin American, Caribbean, and Iberian Studies Program; departments of Community and Environmental Sociology, Sociology and Rural Sociology, Philosophy, and Political Science; La Follette School of Public Affairs; School of Business; School of Library and Information Studies; Public Health Program and others.

Students interested in pursuing an LL.M. or S.J.D. degree should contact the Law School Graduate Programs Office (<http://law.wisc.edu/grad>).

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Consumer Health Advocacy, Graduate/Professional Certificate (p. 482)
- Law, Doctoral Minor (p. 482)

## CONSUMER HEALTH ADVOCACY, GRADUATE/PROFESSIONAL CERTIFICATE

### REQUIREMENTS

The consumer health advocacy graduate/professional certificate is a complementary certificate available to all UW—Madison graduate students, and for professional students from the schools of Nursing, Pharmacy, Medicine and Public Health, and Law.

## LAW, DOCTORAL MINOR

### REQUIREMENTS

Coursework in the Law School may be offered as a minor toward the doctoral degree. Only enrolled non-dissertator Ph.D. students can pursue a doctoral minor in Law. There is no process for applying for a law minor; the minor is not officially recorded on the student's transcript until the minor is completed and the doctoral degree is conferred.

For a minor in law, doctoral candidates must complete 10 credits. The minimum grade requirement is a weighted average of B (on the University, not Law School, grade scale). The same grading standards will be applied.

See Courses & Schedules (<http://www.law.wisc.edu/academics/courses>) for information on Law School courses.

## LIFE SCIENCES COMMUNICATION

**Administrative Unit:** Life Sciences Communication

**College/School:** College of Agricultural and Life Sciences

**Admitting Plans:** M.S.

**Degrees Offered:** M.S.

**Minors and Certificates:** Doctoral Minor

The department offers a master's degree in life sciences communication, with available research/thesis or available professional course-based tracks.

The thesis track requires 30 credits. Study programs match the interests and needs of individual students. However, all students must take a communication theory course, a research methodology course and a statistics course. The program requires a thesis based on original research.

The professional track is a course-based program (30 credits total) that is designed to prepare students for professional careers in life sciences communication and related fields. Students in this track will not usually pursue a Ph.D. program in the future. In fact, many graduate programs (including life sciences communication) do not accept a non-thesis master's as a criterion for admission to their Ph.D. program.

Teaching and research in the department focus on science communication in the areas of emerging technologies, bioenergy, environment, agriculture, health, and food.

The M.S. in life sciences communication and Ph.D. in mass communications (p. 483) graduate programs provide advanced professional training in communication and preparation for communication research and teaching. Students in the professional track M.S. program are studying for careers in a variety of fields, including consulting, policy, journalism, strategic communication, marketing and market research, particularly in science-related fields.

For more information on the master's program, funding, resources, and FAQs, go to the "graduate" tab on the life sciences communication website (<http://lsc.wisc.edu>).

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Life Sciences Communication, Doctoral Minor (p. 483)
- Life Sciences Communication, M.S. (p. 483)

## PEOPLE

**Faculty:** Professors Brossard (chair), Loew, Meiller, Reaves, Scheufele (director of graduate studies); Associate Professors Shaw, Shepard; Assistant Professor Stenhouse

## LIFE SCIENCES COMMUNICATION, DOCTORAL MINOR

### REQUIREMENTS

The doctoral minor in life sciences communication is a course-based minor (10 credits) for students enrolled in other Ph.D. programs who would like to supplement their existing Ph.D. coursework with a minor in science communication. It is particularly valuable for graduate students in the natural and physical sciences or in engineering who are interested in the ethical, legal, and social implications (ELSI) of emerging technologies, or in communication and public attitudes about science and technology. More information may be found on the department website (<http://lsc.wisc.edu/ph-d-minor-in-life-sciences-communication>).

### PEOPLE

**Faculty:** Professors Brossard (chair), Loew, Meiller, Reaves, Scheufele (director of graduate studies); Associate Professors Shaw, Shepard; Assistant Professor Stenhouse

## LIFE SCIENCES COMMUNICATION, M.S.

The department offers a master's degree in life sciences communication, with available research/thesis or available professional course-based tracks.

The thesis track requires 30 credits. Study programs match the interests and needs of individual students. However, all students must take a communication theory course, a research methodology course and a statistics course. The program requires a thesis based on original research.

The professional track is a course-based program (30 credits total) that is designed to prepare students for professional careers in life sciences communication and related fields. Students in this track will not usually pursue a Ph.D. program in the future. In fact, many graduate programs (including life sciences communication) do not accept a non-thesis master's as a criterion for admission to their Ph.D. program.

Teaching and research in the department focus on science communication in the areas of emerging technologies, bioenergy, environment, agriculture, health, and food.

The M.S. in life sciences communication and Ph.D. in mass communications graduate programs provide advanced professional training in communication and preparation for communication research and teaching. Students in the professional track M.S. program are studying for careers in a variety of fields, including consulting, policy, journalism, strategic communication, marketing and market research, particularly in science-related fields.

For more information on the master's program, funding, resources, and FAQs, go to the "graduate" tab on the life sciences communication website (<http://lsc.wisc.edu>).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.: with available professional course-based track and research/thesis track

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

M.S.—professional course-based track: 30 course credits  
M.S.—research/thesis track: 24 credits coursework, up to 6 credits of 990/thesis for total of 30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 out of 30 total credits) must be completed in courses numbered 700 or higher, or in any LSC courses numbered 300–699. Courses in LSC in this range have:

1. an additional graduate-level component and
2. assess graduate students separately from undergraduate students.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

In consultation with the student's advisor and with program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned ten or more years prior to admission to a master's is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between Special and graduate tuition), students are allowed to count no more than 12 credits of coursework numbered 600 or above taken as a UW–Madison Special student. Coursework earned ten or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits (however, 12 credits are highly encouraged)

### PROGRAM-SPECIFIC COURSES REQUIRED

LSC 720 Introduction to Communication Theory and Research, one graduate-level research methods course, one graduate-level statistics course.

### OVERALL GRADUATE GPA REQUIREMENT

3.5 GPA required.

### OTHER GRADE REQUIREMENTS

Students must earn a B or above in all coursework to count it toward the 30-credit total.

### PROBATION POLICY

Students must be in good standing in accordance with the Graduate School Policies and Procedures in order to earn and retain an assistantship within the department. Students who fall out of good standing must meet with the director of graduate studies.

### ADVISOR / COMMITTEE

All students are required to meet with their advisor a minimum of once per semester.

### ASSESSMENTS AND EXAMINATIONS

The research/thesis track requires a formal thesis and oral defense; the non-thesis track requires a comprehensive report or course narrative, and presentation at the culmination of coursework.

### TIME CONSTRAINTS

Students who pursue the thesis-track master's degree will have a limit of four semesters (including summer semesters) of 990/thesis enrollment. The four-semester limit starts with the first semester a student takes 990 credits, whether or not in conjunction with other courses. Students will not be allowed to take leave once their 990 enrollment commences. Students who do not produce and defend a thesis at the end of the four semesters will be issued a professional-track thesis.

If a student in good standing encounters extenuating circumstances and wishes to interrupt her/his program of graduate study, the student can take a leave of absence but must notify the LSC graduate committee in writing prior to the start of the semester they wish to take leave, and specify the reason and anticipated length of the leave. If the student wishes to extend the leave, she or he must again notify the LSC graduate committee in writing to the director of graduate studies and the student services coordinator. The leave of absence guarantees re-entry to the program if the student applies to the Graduate School for readmission within the time period specified. Students whose requests are denied may later apply for readmission, but their acceptance cannot be guaranteed.

### LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Students must meet the minimum requirements for admission set by the Graduate School. Applicants must submit an online application, GRE scores, a statement of purpose, official transcripts from all previously attended institutions, a CV/resume, and three letters of recommendation. Letters of recommendation should come from people who can speak to the scholarly abilities of the applicant. International applicants are required to take and attain a satisfactory score on the Test of English as a Foreign Language (TOEFL), or the International English Language Testing System (IELTS) exam. In order to be eligible for various fellowships and teaching assistantships, early application is recommended. A life sciences communication graduate program application checklist is available for applicants on the program website (<http://lsc.wisc.edu/>)

wp-content/uploads/sites/25/2014/09/LSC-grad-programs-applicant-checklist.pdf).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulate research problems, potentials, and limits with respect to theory, knowledge, and practice within the field of study. Demonstrating knowledge of the theories, concepts, frameworks, empirical findings, and controversies in the field.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies, tools, and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates complex ideas effectively across different audiences.

### PROFESSIONAL CONDUCT

- Recognizes, fosters, and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Brossard (chair), Loew, Meiller, Reaves, Scheufele (director of graduate studies); Associate Professors Shaw, Shepard; Assistant Professor Stenhouse

# LINGUISTICS

**Administrative Unit:** Linguistics

**College/School:** College of Letters & Science

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.A., Ph.D.

**Minors and Certificates:** Doctoral Minor

The Department of Linguistics admits students for the Ph.D. degree in linguistics, and awards a master of arts degree to students in a UW–Madison Ph.D. program upon the completion of the M.A. requirements. Students admitted to the linguistics Ph.D. program must attend the department orientation and must consult with the chair in person by the beginning of classes. All students proposing to minor in linguistics must also consult with the chair, who is the minor advisor, prior to beginning the minor.

The department focuses on research in formal theories of language (encompassing cross-linguistic studies in syntax, phonology, and morphology) and American Indian languages. Other specializations, including historical-comparative linguistics or articulatory and experimental phonetics, may be created by means of interdepartmental study. Students consult with their graduate advisors in establishing their areas of specialization and in working out a coherent program. Applied linguistic studies such as the theory and practice of language teaching or the history and structure of a particular language or language family are handled in other departments, or may be assembled as a program of individual study.

The department maintains a phonetics laboratory for teaching and research in experimental and acoustic phonetics, and also maintains a specialized library collection in the Graduate Reading Room, 1151 Van Hise Hall.

The linguistics graduate student handbook is available online on the program's website (<http://vanhise.lss.wisc.edu/ling/?q=node/15>).

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Linguistics, Doctoral Minor (p. 486)
- Linguistics, M.A. (p. 486)
- Linguistics, Ph.D. (p. 488)

## PEOPLE

**Faculty:** Professors Li, Macaulay, Macken, Raimy (Chair), Valentine

## LINGUISTICS, DOCTORAL MINOR

### REQUIREMENTS

The doctoral minor consists of 12 credits chosen in consultation with the minor advisor. The minor in linguistics will normally include

Code	Title	Credits
LINGUIS/ ANTHRO 301	Introduction to Linguistics: Descriptive and Theoretical	3
LINGUIS 303	Language, History, and Society	3
LINGUIS 310	Phonology	3
LINGUIS 330	Syntax	3

A doctoral minor program must be approved by the minor advisor before it commences.

## PEOPLE

**Faculty:** Professors Li, Macaulay, Macken, Raimy (Chair), Valentine

## LINGUISTICS, M.A.

The Department of Linguistics admits students for the Ph.D. degree in linguistics, and awards a master of arts degree to students in a UW–Madison Ph.D. program upon the completion of the M.A. requirements. Students admitted to the linguistics Ph.D. program must attend the department orientation and must consult with the chair in person by the beginning of classes. All students proposing to minor in linguistics must also consult with the chair, who is the minor advisor, prior to beginning the minor.

The department focuses on research in formal theories of language (encompassing cross-linguistic studies in syntax, phonology, and morphology) and American Indian languages. Other specializations, including historical-comparative linguistics or articulatory and experimental phonetics, may be created by means of interdepartmental study. Students consult with their graduate advisors in establishing their areas of specialization and in working out a coherent program. Applied linguistic studies such as the theory and practice of language teaching or the history and structure of a particular language or language family are handled in other departments, or may be assembled as a program of individual study.

The department maintains a phonetics laboratory for teaching and research in experimental and acoustic phonetics, and also maintains a specialized library collection in the Graduate Reading Room, 1151 Van Hise Hall.

The linguistics graduate student handbook is available online on the program's website (<http://vanhise.lss.wisc.edu/ling/?q=node/15>).

## FUNDING

The department currently supports teaching assistantships for LINGUIS 101 Human Language, usually awarded to graduate students after their first year of study. Project assistantships are often available from both inside and outside the department. Advanced Opportunity Fellowships are possible for targeted students who are U.S. citizens or permanent residents. A small number of fellowships are available and are administered through the Graduate School. TA appointments in other departments, for instance in language departments or in the English as a second language program, are sometimes possible based on a student's skill set, since being a student in those departments is not a condition of employment.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

All linguistics courses must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>). This will be a total of at least 24 credits out of 30.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Four 300-level linguistic courses; two 500-level linguistics courses; Linguistics 800 Research Methods and Materials; one additional 500+ level linguistics course; and two additional approved courses. Contact program for list of specific courses.

### OVERALL GRADUATE GPA REQUIREMENT

Students must maintain a minimum GPA of 3.0.

### OTHER GRADE REQUIREMENTS

Students must maintain a GPA of 3.67 in substantive courses taken in the Department of Linguistics after the third semester. Student must complete the required courses with a GPA of 3.25 to earn the M.A. degree.

### PROBATION POLICY

Probation is a warning to a student who is not making satisfactory progress in the graduate program of the linguistics department. Departmental probation for grades or failure to make satisfactory progress lasts for one academic year (two consecutive semesters), while probation for an unsatisfactory prelim paper or unfinished Incompletes lasts for one semester.

If a student on probation clears up the problem that led to probation within the time period allotted, nothing else happens, and the student can continue with the program.

If the student does not resolve the problem (e.g. raise the GPA or successfully complete a prelim), the student is dropped from the program at the end of the probationary period.

### ADVISOR / COMMITTEE

Every graduate student must have an official faculty advisor. New students are usually assigned to the chair by default, unless they come with the intention of working with a particular faculty member. By the end of the first year, students must decide whom they would like to work with, and must ask that person if they are willing to serve as advisor. If the faculty member agrees, the student is responsible for having the faculty member sign the blue advisor agreement form, and for making sure that it is placed in the student's file. All permanent faculty members in the department (including affiliated faculty but excluding visiting faculty) may serve as advisors. Faculty from other departments may not serve as official advisors, even though they may co-chair committees.

Every faculty member has the right to refuse to become a student's advisor. Every graduate student has the right to choose any faculty member as advisor, so long as the faculty member agrees. Students should also feel free to change advisors at any time, without fear of offending a faculty member. If a student changes advisors, a new advisor agreement form must be signed and filed, and the previous advisor must be notified by the student in writing.

The advisor guides the student in the choice of appropriate courses, in the planning of prelims and the dissertation, in choosing prelim committees and the dissertation committee, and in other professional matters. Students are reminded, however, that the fulfillment of departmental requirements is ultimately the student's responsibility.

Each semester, the student must consult in person with the advisor about courses for the following semester. Registration is blocked until this is done, and is only unblocked when the student turns in the relevant form to the department, signed by the advisor.

### ASSESSMENTS AND EXAMINATIONS

Submit and defend on prelim paper by the end of the fourth semester. Contact the program for further details.

### TIME CONSTRAINTS

The prelim paper must be completed by the end of the fourth semester.

## LANGUAGE REQUIREMENTS

Knowledge of two languages is required. One must be English. The language requirements can be satisfied in multiple ways and the program should be contacted directly for further details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of linguistics.
- Identifies sources of data and assembles evidence pertaining to questions or challenges in the field of linguistics.
- Demonstrates understanding of linguistics in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of linguistics.
- Communicates clearly in ways appropriate to the field of linguistics.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Li, Macaulay, Macken, Raimy (Chair), Valentine

## LINGUISTICS, PH.D.

The Department of Linguistics admits students for the Ph.D. degree in linguistics, and awards a master of arts degree to students in a UW–Madison Ph.D. program upon the completion of the M.A. requirements. Students admitted to the linguistics Ph.D. program must attend the department orientation and must consult with the chair in person by the beginning of classes. All students proposing to minor in linguistics must also consult with the chair, who is the minor advisor, prior to beginning the minor.

The department focuses on research in formal theories of language (encompassing cross-linguistic studies in syntax, phonology, and morphology) and American Indian languages. Other specializations, including historical-comparative linguistics or articulatory and experimental phonetics, may be created by means of interdepartmental study. Students consult with their graduate advisors in establishing their areas of specialization and in working out a coherent program. Applied linguistic studies such as the theory and practice of language teaching or the history and structure of a particular language or language family are handled in other departments, or may be assembled as a program of individual study.

The department maintains a phonetics laboratory for teaching and research in experimental and acoustic phonetics, and also maintains a specialized library collection in the Graduate Reading Room, 1151 Van Hise Hall.

The linguistics graduate student handbook is available online on the program's website (<http://vanhise.lss.wisc.edu/ling/?q=node/15>).

## FUNDING

The department currently supports teaching assistantships for LINGUIS 101 Human Language, usually awarded to graduate students after their first year of study. Project assistantships are often available from both inside and outside the department. Advanced Opportunity Fellowships are possible for targeted students who are U.S. citizens or permanent residents. A small number of fellowships are available and are administered through the Graduate School. TA appointments in other departments, for instance in language departments or in the English as a second language program, are sometimes possible based on a student's skill set, since being a student in those departments is not a condition of employment.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

54 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

All linguistics courses must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>). This will be a total of at least 42 credits out of 54.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.



## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
LINGUIS 310	Phonology	3
LINGUIS 322	Morphology	3
LINGUIS 330	Syntax	3
LINGUIS 340	Semantics	3
LINGUIS 510	Phonological Theories	3
LINGUIS 522	Advanced Morphology	3
LINGUIS 530	Syntactic Theories	3
LINGUIS 800	Research Methods and Materials	3

Select three linguistics seminars (LINGUIS 97X)

Contact program for list of specific courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

A 12-credit minor that is approved by the student's advisor is required.

## OVERALL GRADUATE GPA REQUIREMENT

Students must maintain a minimum GPA of 3.0.

## OTHER GRADE REQUIREMENTS

Students must maintain a GPA of 3.67 in substantive courses taken in the Department of Linguistics after the third semester.

## PROBATION POLICY

Probation is a warning to a student who is not making satisfactory progress in the graduate program of the linguistics department. Departmental probation for grades or failure to make satisfactory progress lasts for one academic year (two consecutive semesters), while probation for an unsatisfactory prelim paper or unfinished Incompletes lasts for one semester.

If a student on probation clears up the problem that led to probation within the time period allotted, nothing else happens, and the student can continue with the program.

If the student does not resolve the problem (e.g. raise the GPA or successfully complete a prelim), the student is dropped from the program at the end of the probationary period.

## ADVISOR / COMMITTEE

Every graduate student must have an official faculty advisor. New students are usually assigned to the chair by default, unless they come with the intention of working with a particular faculty member. By the end of the first year, students must decide whom they would like to work with, and must ask that person if they are willing to serve as advisor. If the faculty member agrees, the student is responsible for having the faculty member sign the blue advisor agreement form, and for making sure that it is placed in the student's file. All permanent faculty members in the department (including affiliated faculty but excluding visiting faculty)

may serve as advisors. Faculty from other departments may not serve as official advisors, even though they may co-chair committees.

Every faculty member has the right to refuse to become a student's advisor. Every graduate student has the right to choose any faculty member as advisor, so long as the faculty member agrees. Students should also feel free to change advisors at any time, without fear of offending a faculty member. If a student changes advisors, a new advisor agreement form must be signed and filed, and the previous advisor must be notified by the student in writing.

The advisor guides the student in the choice of appropriate courses, in the planning of prelims and the dissertation, in choosing preliminary committees and the dissertation committee, and in other professional matters. Students are reminded, however, that the fulfillment of departmental requirements is ultimately the student's responsibility.

Each semester, the student must consult in person with the advisor about courses for the following semester. Registration is blocked until this is done, and is only unblocked when the student turns in the relevant form to the department, signed by the advisor.

## ASSESSMENTS AND EXAMINATIONS

Submit and defend on two prelim papers. One by the end of the fourth semester and the other by the end of the eighth semester. Contact the program for further details.

## TIME CONSTRAINTS

The first prelim paper must be completed by the fourth semester, the second prelim paper must be completed by the eighth semester, all language and course requirements must be completed by the end of the semester in which the second prelim paper is defended, and a dissertation proposal must be submitted and defended within two weeks of the defense of the second prelim paper.

## LANGUAGE REQUIREMENTS

Knowledge of three languages is required. One must be English. The second must be a non-Indo-European language or a modern Indic language. The third is determined in consultation with the advisor according to the student's research goals. Students must complete their language requirements before their second prelim exam. The language requirements can be satisfied in multiple ways and the program should be contacted directly for further details.

## ADMISSIONS

The department admits only students whose goal is the Ph.D. degree in linguistics. Admission to the Ph.D. program does not require an undergraduate degree in linguistics. Admission is based on the applicant's personal statement, three letters of recommendation, Graduate Record Exam (GRE) scores, TOEFL scores if applicable, and transcripts of prior academic work. The personal statement is considered carefully to ensure that the applicant's goals are compatible with the program offered by the department.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Regardless of whether an individual is awarded a master's degree, the doctoral level learning goals are inclusive of the master's level learning goals.
- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of linguistics.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within linguistics.
- Creates research that makes a substantive contribution to the understanding of human language.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of linguistics to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Li, Macaulay, Macken, Raimy (Chair), Valentine

# MANAGEMENT AND HUMAN RESOURCES

**Administrative Unit:** Management

**College/School:** School of Business

**Admitting Plans:** MBA

**Degrees Offered:** M.A. in Arts Administration; M.S. in Management and Human Resources; MBA in Arts Administration; MBA in Management and Human Resources

**Named Options:** Strategic Human Resource Management (MBA)

**Specializations:** Graduate/Professional Certificates in Entrepreneurship; Strategic Innovation: Technology, Organizations, and Society

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Business: Arts Administration, M.A. (p. 491)
- Business: Arts Administration, MBA (p. 492)
- Business: Management and Human Resources, M.S. (p. 494)
- Business: Management and Human Resources, MBA (p. 495)
- Entrepreneurship, Graduate/Professional Certificate (p. 497)
- Strategic Innovation: Technology, Organizations, and Society, Graduate/Professional Certificate (p. 497)

## PEOPLE

**Faculty:** Professors Trevor (chair), Aldag, Coff, Dunham, Gerhart; Associate Professors Eckhardt, Ganco, Posen, Stajkovic, Terlaak, Triana; Assistant Professors Kim, Navis, Sarada, Shin

## BUSINESS: ARTS ADMINISTRATION, M.A.

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison's School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between special and graduate tuition), students are allowed to count no more than 9 credits of coursework numbered 700 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to the master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<http://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program's website for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will be able to apply foundational knowledge in arts and core business topics to arts and/or nonprofit contexts that include evidence-based analysis, cultural sensitivity, artistic integrity, and appreciation for the research foundations of their work.

- Students will be able to create, communicate, and execute a strategic plan with mission-based outcomes that relies on research-based evidence, a historical context to forecast future trends, and stakeholder engagement.
- Students will be able to adaptively develop and manage the necessary resources in a mission-based organizational context to create sustainable systems that meet the needs of diverse stakeholders and honors the culture of the communities served.
- Students will be able to successfully articulate their ideas to a diverse set of constituents and stakeholders via multiple methods so as to be informative, persuasive and inspiring.
- Students will be able to make significant contributions to the thought leadership, and industry insight that strengthens and provides service to the field, lifelong learning, and career development.

## PROFESSIONAL CONDUCT

- Students will develop self-awareness and leadership skills necessary to:
  - a. utilize creativity and art to articulate a clear vision;
  - b. engage/inspire a diverse group of colleagues,
  - c. evaluate the immediate and long-term ethical impacts of one's actions on stakeholders;
  - d. and influence and promote progress in a variety of professional roles and contexts.
- Students will be able to engage and sustain a strong cross-functional network of professionals.

## BUSINESS: ARTS ADMINISTRATION, MBA

For more than four decades, the School of Business arts administration major has been the graduate degree program of choice for high-potential arts and cultural managers seeking intensive training in business, an immersion in strategic and innovative thinking, and a broad and dynamic knowledge of nonprofit cultural management. The degree has delivered on that promise through its world-class business curriculum, continual interaction with leading practitioners, and hands-on work experiences for every student. See the program website (<http://beta.bus.wisc.edu/programs/mba-programs/full-time-mba/career-specializations/arts-administration>) for more information.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

## MASTER'S DEGREES

MBA

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits of prior coursework are allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

No credits of prior coursework are allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits<sup>1</sup>

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a

faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

<sup>1</sup> Full-time MBA students may be allowed to enroll in up to 18 credits per term in the 2016–2017 academic year. Contact the Wisconsin School of Business for more information.

## ADMISSIONS

Admission consideration for the MBA program requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. The School of Business seeks a minimum of two years of full-time work experience along with a strong undergraduate performance. In addition to academic credentials, GMAT scores, and work experience, personal achievements, motivation, communication skills (written and oral), international exposure, and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT), taken within five years of the starting term, is required of all applicants to the School of Business; the Graduate Record Exam (GRE) may be an acceptable alternative on a case-by-case basis. All applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL), the Pearson Test of English (PTE), Intensive English as a Second Language (IELTS) or show the completion of an Interlink program. A minimum iBT TOEFL score of 100 or equivalent, obtained within two years of the intended start term, is required. International applicants who have completed a degree at an institution whose primary language of instruction was English may request a waiver of this requirement on the application.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will be able to apply foundational knowledge in arts and core business topics to arts and/or nonprofit contexts that include evidence-based analysis, cultural sensitivity, artistic integrity, and appreciation for the research foundations of their work.
- Students will be able to create, communicate, and execute a strategic plan with mission-based outcomes that relies on research-based evidence, a historical context to forecast future trends, and stakeholder engagement.

- Students will be able to adaptively develop and manage the necessary resources in a mission-based organizational context to create sustainable systems that meet the needs of diverse stakeholders and honors the culture of the communities served.
- Students will be able to successfully articulate their ideas to a diverse set of constituents and stakeholders via multiple methods so as to be informative, persuasive and inspiring.
- Students will be able to make significant contributions to the thought leadership, and industry insight that strengthens and provides service to the field, lifelong learning, and career development.

## PROFESSIONAL CONDUCT

- Students will develop self-awareness and leadership skills necessary to:
  - a. utilize creativity and art to articulate a clear vision;
  - b. engage/inspire a diverse group of colleagues,
  - c. evaluate the immediate and long-term ethical impacts of one's actions on stakeholders;
  - d. and influence and promote progress in a variety of professional roles and contexts.
- Students will be able to engage and sustain a strong cross-functional network of professionals.

## BUSINESS: MANAGEMENT AND HUMAN RESOURCES, M.S.

The M.S. degree is designed for students who wish to pursue very specialized studies within one of two specific fields: global real estate (in the business: real estate and urban land economics M.S.) and finance (within the business: finance, investment and banking M.S.). With previous undergraduate exposure to the functional areas of business, students are able to gain a more extensive focus in one of these two specific areas of business.

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

## MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between special and graduate tuition), students are allowed to count no more than 9 credits of coursework numbered 700 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to the master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission consideration requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. Work experience is not required. Applicants should have an undergraduate minimum grade point average (GPA) of 3.0 or higher on a 4.0 scale. In addition to academic credentials, test scores, personal achievements, motivation, communication skills (written and oral) and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT) or the Graduate Record Exam (GRE), taken within five years of the starting term, is required of all applicants to the Ph.D. and M.S. programs. Also, all domestic (including Puerto Rico) and international applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL). A recommended minimum TOEFL score of 106 (New iBT), obtained within two years of the intended starting term, is needed for admission consideration. International applicants who have completed a four-year bachelor's degree in a country where the official language is English may request a waiver of the TOEFL requirement. A master's degree from an English-speaking institution does not qualify for a waiver of the TOEFL. The school accepts IELTS and Pearson Test of English as substitutes for TOEFL.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Understand the connection between human resource management and overall business strategy.

- Analyze organization compensation strategy to identify problems and develop solutions that support the organization's strategy.
- Discern which staffing techniques are poor, fair, and good predictors of employees' future job performance.
- Comprehend the various challenges currently facing the labor and employment relations system to be able to address these challenges.

## PROFESSIONAL CONDUCT

- Apply appropriate tactics in competitive and cooperative negotiations individually and as part of a negotiation team.
- Design work systems and roles that allow employees to contribute to organization performance.

## PEOPLE

**Faculty:** Professors Trevor (chair), Aldag, Coff, Dunham, Gerhart; Associate Professors Eckhardt, Ganco, Posen, Stajkovic, Terlaak, Triana; Assistant Professors Kim, Navis, Sarada, Shin

## BUSINESS: MANAGEMENT AND HUMAN RESOURCES, MBA

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## NAMED OPTION IN STRATEGIC HUMAN RESOURCES MANAGEMENT

The Wisconsin program in strategic human resource management (SHRM) produces leaders who are equipped with the necessary skills to change tomorrow. The curriculum combines expertise in human resources with the knowledge required to be a strategic business partner. Many of the functional areas of HR and core competencies are covered through academic courses and program activities outside the classroom. The combination of core MBA learning, specialized courses, applied learning opportunities, and human resources internships sets the Wisconsin SHRM program apart from its competitors. See the program website (<http://beta.bus.wisc.edu/programs/mba-programs/full-time-mba/career-specializations/strategic-human-resource-management>) for more information.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

MBA, with available named option Strategic Human Resource Management

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits of prior coursework are allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No credits of prior coursework are allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits<sup>1</sup>

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result

in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

<sup>1</sup> Full-time MBA students may be allowed to enroll in up to 18 credits per term in the 2016–2017 academic year. Contact the Wisconsin School of Business for more information.

## ADMISSIONS

Admission consideration for the MBA program requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. The School of Business seeks a minimum of two years of full-time work experience along with a strong undergraduate performance. In addition to academic credentials, GMAT scores and work experience, personal achievements, motivation, communication skills (written and oral), international exposure and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT), taken within five years of the starting term, is required of all applicants to the School of Business; the Graduate Record Exam (GRE) may be an acceptable alternative on a case by case basis. All applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL), the Pearson Test of English (PTE), Intensive English as a Second Language (IELTS), or show the completion of an Interlink program. A minimum iBT TOEFL score of 100 or equivalent, obtained within two years of the intended start term, is required. International applicants who have completed a degree at an institution whose primary language of instruction was English may request a waiver of this requirement on the application.



## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Understand the connection between human resource management and overall business strategy.
- Analyze organization compensation strategy to identify problems and develop solutions that support the organization's strategy.
- Discern which staffing techniques are poor, fair, and good predictors of employees' future job performance.
- Comprehend the various challenges currently facing the labor and employment relations system to be able to address these challenges.

### PROFESSIONAL CONDUCT

- Apply appropriate tactics in competitive and cooperative negotiations individually and as part of a negotiation team.
- Design work systems and roles that allow employees to contribute to organization performance.

## PEOPLE

**Faculty:** Professors Trevor (chair), Aldag, Coff, Dunham, Gerhart; Associate Professors Eckhardt, Ganco, Posen, Stajkovic, Terlaak, Triana; Assistant Professors Kim, Navis, Sarada, Shin

## ENTREPRENEURSHIP, GRADUATE/ PROFESSIONAL CERTIFICATE

**Administrative Unit:** Management and Human Resources  
**College/School:** School of Business  
**Degrees Offered:** Graduate/Professional Certificate

The graduate/professional certificate in entrepreneurship seeks to provide entrepreneurial knowledge and skills to students who desire to launch a new organization, work more effectively in startup situations, or explore and better understand the regulatory policies that affect company formation and performance. The certificate is available to all UW–Madison graduate degree-seeking students (excluding University Special students).

A student who has completed this certificate will have good foundational skills in recognizing promising opportunities and building a new organization or venture to create social/economic value.

Students who successfully complete the requirements for the certificate and submit the required certificate declaration and certificate completion forms to the Department of Management and Human Resources office will have the certificate noted on their official university transcripts by the Office of the Registrar.

## REQUIREMENTS

The 12-credit program draws upon entrepreneurship courses in the School of Business, but students may select approved, elective courses from a variety of schools and colleges across the university that address the ability to launch and lead new ventures. Approved courses develop and deepen students' capacity to: assess opportunities, analyze the

structure of markets, develop new products, perform financial analysis, understand the consequences of entity types, use intellectual property strategically in dynamic markets, form effective teams, and formulate strategies for organizational growth. Other courses help students better understand the role of entrepreneurial activity in economic growth and the achievement of societal goals.

## ADMISSIONS

To indicate interest in the certificate, students should have the following information available:

- UW–Madison student identification number
- UW–Madison-issued email address
- Name of current program or major

## STRATEGIC INNOVATION: TECHNOLOGY, ORGANIZATIONS, AND SOCIETY, GRADUATE/ PROFESSIONAL CERTIFICATE

**Administrative Unit:** Management and Human Resources  
**College/School:** School of Business  
**Degrees Offered:** Graduate/Professional Certificate

The graduate/professional certificate in strategic innovation seeks to provide knowledge and skills to students around the development of innovative products, services, and processes within an existing organization. The certificate is available to all UW–Madison graduate degree-seeking students (excluding University Special students).

## REQUIREMENTS

The 12-credit program draws upon strategy and related courses in the School of Business, but students may select approved, elective courses from a variety of schools and colleges across the university that deepen students' capacity for:

- Analyzing new markets
- Managing research and product development processes in existing organizations
- Supporting organizational creativity
- Articulating innovative business models
- Identifying and appropriating the value of intellectual property
- Assessing society-level innovation systems

The certificate program offers foundational skills and knowledge appropriate for graduate students who anticipate working in dynamic organizations that depend on innovation to compete in the marketplace and/or use innovation to create value for society more broadly.

A student who has completed the certificate will be prepared to execute in-depth new product development plans for an existing organization or identify and evaluate innovation challenges in society.

Students who successfully complete the requirements for the certificate and submit the required certificate declaration and certificate completion

forms to the Department of Management and Human Resources office will have the certificate noted on their official university transcripts by the Office of the Registrar.

## ADMISSIONS

To indicate interest in the certificate, students should have the following information available:

- UW–Madison student identification number
- UW–Madison-issued email address
- Name of current program or major

# MARKETING

**Administrative Unit:** Marketing

**College/School:** School of Business

**Admitting Plans:** MBA

**Degrees Offered:** MBA, M.S.

**Named Options:** Marketing Research (MBA); Product Management (MBA)

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Business: Marketing, M.S. (p. 499)
- Business: Marketing, MBA (p. 500)

## PEOPLE

**Faculty:** Professors Thompson (chair), Arora, Heide, Moreau, O'Guinn, Thompson; Associate Professors Epp, Hoban, Lim, Peck, Tanner; Assistant Professors Chung, Liu, Mallucci, Polman, Weiss

## BUSINESS: MARKETING, M.S.

The M.S. degree in the School of Business is currently designed for students who wish to pursue very specialized studies within one of two specific fields: global real estate (in the business: real estate and urban land economics M.S.) and finance (within the business: finance, investment and banking M.S.). With previous undergraduate exposure to the functional areas of business, students are able to gain a more extensive focus in one of these two specific areas of business.

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the

School of Business faculty bring a variety of real-world experience to the program.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between special and graduate tuition), students are allowed to count no more than 9 credits of coursework numbered 700 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to the Master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a

graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission consideration requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. Work experience is not required. Applicants should have an undergraduate minimum grade point average (GPA) of 3.0 or higher on a 4.0 scale. In addition to academic credentials, test scores, personal achievements, motivation, communication skills (written and oral) and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT) or the Graduate Record Exam (GRE), taken within five years of the starting term, is required of all applicants to the Ph.D. and M.S. Programs. Also, all domestic (including Puerto Rico) and international applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL). A recommended minimum TOEFL score of 106 (New iBT), obtained within two years of the intended starting term, is needed for admission consideration. International applicants who have completed a four-year bachelor's degree in a country where the official language is English may request a waiver of the TOEFL requirement. A master's degree from an English-speaking institution

does not qualify for a waiver of the TOEFL. The school accepts IELTS and Pearson Test of English as substitutes for TOEFL.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will be able to clearly articulate a business recommendation based on a discovered consumer insight (A.C. Nielsen Specialization)
- Students will be able to demonstrate a knowledge of or ability to grow business profitably through marketing research efforts (A.C. Nielsen Specialization)
- Students will be able to articulate a business problem and translate it into a marketing research question (A.C. Nielsen Specialization)
- Students will be able to evaluate a business problem and apply an appropriate marketing research technique to address the problem (A.C. Nielsen Specialization)
- Graduates will be able to develop key elements of a brand's business plan that drive growth (Brand Specialization)
- Graduates will be able to perform business analytics used to improve a brand's business results (Brand Specialization)

### PROFESSIONAL CONDUCT

- Students will articulate a plan for achieving their industry professional aspirations (A.C. Nielsen Specialization)
- Graduates will be able to demonstrate professional protocols for succeeding in the corporate environment (Brand Specialization)

### ADDITIONAL LEARNING GOALS

- Students will summarize current challenges faced by the marketing research industry and know potential solutions or how the industry is approaching the challenge (A.C. Nielsen Specialization)
- Graduates will be able to effectively communicate in order to drive growth for their brand's business (Brand Specialization)
- Graduates will understand how to lead a cross-functional brand and product team to achieve a goal or an objective (Brand Specialization)

## PEOPLE

**Faculty:** Professors Thompson (chair), Arora, Heide, Moreau, O'Guinn, Thompson; Associate Professors Epp, Hoban, Lim, Peck, Tanner; Assistant Professors Chung, Liu, Mallucci, Polman, Weiss

## BUSINESS: MARKETING, MBA

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the

School of Business faculty bring a variety of real-world experience to the program.

## BRAND AND PRODUCT MANAGEMENT

The Center for Brand and Product Management is the nation's first university-based center focused on producing talent and knowledge in the field of brand and product management. The center was established to fill a gap—no one was training business students to be top-notch brand managers. Brand management is the one “specialty” that requires a breadth of business skills. The Center for Brand and Product Management's unique environment—and uniquely effective blend of curriculum and applied learning—builds those skills. Since its inception in 2003, the Center for Brand and Product Management has had 100 percent internship placement and strong full-time placement at some of the best consumer-packaged-goods companies around the country. Students leave with a network, a community, and a portfolio of applied learning experiences. See the program website (<http://beta.bus.wisc.edu/programs/mba-programs/full-time-mba/career-specializations/brand-product-management>) for more information.

## MARKETING RESEARCH

There is no better foundation for marketing action than marketing research. The A.C. Nielsen Center for Marketing Research offers the premier full-time MBA program with a specialization in marketing research. The center was established in 1990 and is built on the legacy and funding of the Arthur C. Nielsen Jr. family, pioneers in the field of marketing research. It was created to train MBA students in the specialized ideas, issues, and techniques of marketing research, as well as to help discover and disseminate new marketing research knowledge. See the program website (<http://beta.bus.wisc.edu/programs/mba-programs/full-time-mba/career-specializations/marketing-research>) for more information.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

MBA, with available named options Marketing Research, and Product Management

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits of prior coursework are allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

No credits of prior coursework are allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits<sup>1</sup>

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

- 1 Full-time MBA students may be allowed to enroll in up to 18 credits per term in the 2016–2017 academic year. Contact the Wisconsin School of Business for more information.

## ADMISSIONS

Admission consideration for the MBA program requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. The School of Business seeks a minimum of two years of full-time work experience along with a strong undergraduate performance. In addition to academic credentials, GMAT scores and work experience, personal achievements, motivation, communication skills (written and oral), international exposure and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT), taken within five years of the starting term, is required of all applicants to the School of Business; the Graduate Record Exam (GRE) may be an acceptable alternative on a case by case basis. All applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL), the Pearson Test of English (PTE), Intensive English as a Second Language (IELTS), or show the completion of an Interlink program. A minimum iBT TOEFL score of 100 or equivalent, obtained within two years of the intended start term, is required. International applicants who have completed a degree at an institution whose primary language of instruction was English may request a waiver of this requirement on the application.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will be able to clearly articulate a business recommendation based on a discovered consumer insight (A.C. Nielsen Specialization)
- Students will be able to demonstrate a knowledge of or ability to grow business profitably through marketing research efforts (A.C. Nielsen Specialization)
- Students will be able to articulate a business problem and translate it into a marketing research question (A.C. Nielsen Specialization)
- Students will be able to evaluate a business problem and apply an appropriate marketing research technique to address the problem (A.C. Nielsen Specialization)
- Graduates will be able to develop key elements of a brand's business plan that drive growth (Brand Specialization)
- Graduates will be able to perform business analytics used to improve a brand's business results (Brand Specialization)

### PROFESSIONAL CONDUCT

- Students will articulate a plan for achieving their industry professional aspirations (A.C. Nielsen Specialization)
- Graduates will be able to demonstrate professional protocols for succeeding in the corporate environment (Brand Specialization)

### ADDITIONAL LEARNING GOALS

- Students will summarize current challenges faced by the marketing research industry and know potential solutions or how the industry is approaching the challenge (A.C. Nielsen Specialization)
- Graduates will be able to effectively communicate in order to drive growth for their brand's business (Brand Specialization)
- Graduates will understand how to lead a cross-functional brand and product team to achieve a goal or an objective (Brand Specialization)

## PEOPLE

**Faculty:** Professors Thompson (chair), Arora, Heide, Moreau, O'Guinn, Thompson; Associate Professors Epp, Hoban, Lim, Peck, Tanner; Assistant Professors Chung, Liu, Mallucci, Polman, Weiss

# MATERIALS SCIENCE AND ENGINEERING

**Administrative Unit:** Materials Science and Engineering

**College/School:** College of Engineering

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

Meeting many of the most critical challenges facing modern society requires advances in the materials that underpin new technologies. Examples include providing carbon-free and renewable energy, clean water, advanced medical treatments and devices, and sustainable materials manufacturing. New materials are also required for continued economic growth in areas as diverse as aerospace, computing, and sensors.

Materials scientists and engineers at UW–Madison work toward solutions to these problems via research in a wide variety of areas.

Research areas include ceramics, computational material science; composites; corrosion; electrical, optical, magnetic materials; growth and synthesis; joining; materials for energy; metals; materials characterization and microscopy; nanomaterials; phase transformations; photonics; polymers and biomaterials; materials for nuclear energy; quantum computing; self-assembly; semiconductors; structural materials and mechanical properties; surfaces and interfaces; sustainability; thin films; and wear.

More broadly, the field of materials science and engineering is in the middle of a revolution in how we design and deploy new materials. The old way is by trial and error, which involves laboratory testing of hundreds or thousands of candidate materials, which is costly and can take decades to develop a new materials and deploy it in practical technologies. The emerging new method leverages advances in computational materials science; materials databases, data science, and machine learning; and high throughput materials synthesis and characterization to achieve true design of materials. The goal is to develop and deploy new materials much more quickly and much lower cost than ever before. Materials design is a major theme of materials research on campus, organized around the areas of materials design via atomically controlled thin film systems, modular design of nanomaterials, and integrated experimental and computational materials engineering. Materials design and these themes cut across the research and application areas list above.

Materials research extends across campus, well beyond the boundaries of the Department of Materials Science and Engineering, so graduate students in materials can pursue research with a large number of affiliate faculty. Faculty emphasize the cross-cutting, interdisciplinary nature of materials research, which is also reflected by the diverse undergraduate backgrounds of the student body, many of whom do not have undergraduate degrees in materials.

Materials research benefits from major campus facilities, including the Materials Science Center, the Wisconsin Microscopy and Characterization Center, Wisconsin Center for Applied Microelectronics, and the Soft Materials Laboratory. Research is supported by major centers, including the National Science Foundation Materials Research Science and Engineering Center and the Grainger Institute for Engineering.

Materials graduates from Wisconsin find long-term success in careers in private industry, national laboratories, and academia in the US and around the world.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Materials Engineering, M.S. (p. 503)
- Materials Engineering, Ph.D. (p. 505)
- Materials Science and Engineering, Doctoral Minor (p. 506)
- Materials Science and Engineering, M.S. (p. 506)
- Materials Science and Engineering, Ph.D. (p. 508)

## PEOPLE

**Faculty:** Professors: Babcock, Eom, Evans, Gopalan, Kou, Lagally, Lakes, Morgan, Perepezko, Robertson, Stone, Szlufarska, Voyles; Associate Professors: Arnold, Wang; Assistant Professors: Kawasaki.

**Affiliate Faculty:** Abbott, Allen, Andrew, Ashton, Beebe, Booske, Botez, Cai, Chesler, Coppersmith, Cramer, Crone, Drugan, Eriksson, Eriten, Goldsmith, Gong, Gunasekaran, Hamers, Hitchon, Jiang, Jin, Kats, Keely, Klingenberg, Knevic, Kuech, Kulcinski, Li, Lynn, Ma, Masters, Mawst, McDermott, Murphy, Negrut, Ogle, Onellion, Osswald, Palecek, Pfefferkorn, Ploeg, Reed, Root, Rowlands, Rzchowski, Sarmadi, Shohet, Sridharan, Thelen, Turng, van der Weide, Vanderby, Weibel, Wendt, Williams, Winokur, Xu, Yu

## MATERIALS ENGINEERING, M.S.

**The requirements for the M.S. in materials engineering have been merged with materials science. See Materials Science and Engineering (p. 503).**

**Admission to the program has been suspended. The information that appears in this entry is provided for the benefit of students currently admitted to the program.**

**Administrative Unit:** Material Sciences and Engineering

**College/School:** College of Engineering

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., M.Eng., Ph.D.

**Minors and Certificates:** Doctoral Minor

The department mission is to provide local, national, and international leadership in materials research and education. Graduate research in materials science and engineering covers a full range of cutting-edge technologies.

Department faculty run internationally recognized research programs which span the field to include computational materials science, biomaterials, nanomaterials, energy related materials, metals, polymers, electronic materials, ceramics, and composites. Of the 17 full-time faculty in the Department of Materials Science and Engineering, five senior faculty belong to the National Academy of Engineering and five assistant professors introduce expertise in exciting new areas. Faculty at all levels bring leadership in research and education.

The creation of advanced materials and devices requires the application of increasingly sophisticated concepts and tools. Tailored materials with desired properties can be engineered through control of the structure of solids at all length scales ranging from centimeters down to the atomic

level. Students of materials are engaged in creating and understanding new materials and new materials phenomena. After they leave Wisconsin, materials graduates find careers in private industry, national laboratories, and academia.

The UW offers two graduate programs in materials: Materials Engineering (MS&E) and the Materials Science Program (MSP). Students who apply to one are usually considered by the other. Department faculty supervise the thesis work of students from both MS&E and MSP.

The vast majority of students receive financial aid in the form of fellowships, research or teaching assistantships, or advanced opportunity grants.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 15 of the required 30 credits must be in courses designed for graduate work, which may include graduate-level math—EP 547; graduate-level thermodynamics—MS&E 530; any courses taken at the 700 level or above (including classroom courses and master's research, thesis, and seminar courses); and MS&E courses numbered 400 or higher that either have a graduate student enrollment >50% in any given semester—MS&E 448, 560, 570, or assess graduate students separately from undergraduate students—MS&E 553.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW—MADISON UNDERGRADUATE

Up to 7 credits numbered 300 or above can be counted toward the minimum graduate degree credit requirement. Up to 7 credits of MS&E courses numbered 700 or above can be counted toward the minimum graduate coursework (50%) requirement. No credits can be counted toward the minimum graduate residence credit requirement.

### PRIOR COURSEWORK REQUIREMENTS: UW—MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between Special and graduate tuition), students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW—Madison Special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement; if that coursework is numbered 700 or above it may satisfy the minimum graduate coursework (50%) requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENTS AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students



completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

**The requirements for the M.S. in Materials Engineering have been merged with Materials Science. See "Materials Science & Engineering". Admission to the program has been suspended. The information that appears in this entry is provided for the benefit of students currently admitted to the program.**

Admission to the graduate program in the Department of Materials Science and Engineering is based on the student's previous academic record, Graduate Record Exam (GRE) scores, letters of recommendation, and a personal statement. Admission is competitive.

**For more information:** Materials Science and Engineering, 1509 University Avenue #276A, Madison, WI 53706; msaegradquery@engr.wisc.edu; www.engr.wisc.edu/mse.

## PEOPLE

**Faculty:** Professors Babcock (chair), Eom, Kou, Lagally, Peercy, Perepezko; Associate Professor Stone (associate chair); Assistant Professors Evans, Gildrie-Voyles, Gopalan, Morgan, Szlufarska

## MATERIALS ENGINEERING, PH.D.

**The requirements for the Ph.D. in materials engineering have been merged with materials science. See Materials Science and Engineering (p. 503). Admission to the program has been suspended. The information that appears in this entry is provided for the benefit of students currently admitted to the program.**

**Administrative Unit:** Material Sciences and Engineering

**College/School:** College of Engineering

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., M.Eng., Ph.D.

**Minors and Certificates:** Doctoral Minor

The department mission is to provide local, national, and international leadership in materials research and education. Graduate research in materials science and engineering covers a full range of cutting-edge technologies.

Department faculty run internationally recognized research programs which span the field to include computational materials science, biomaterials, nanomaterials, energy related materials, metals, polymers, electronic materials, ceramics, and composites. Of the 17 full-time faculty in the Department of Materials Science and Engineering, five senior faculty belong to the National Academy of Engineering and five assistant professors introduce expertise in exciting new areas. Faculty at all levels bring leadership in research and education.

The creation of advanced materials and devices requires the application of increasingly sophisticated concepts and tools. Tailored materials with desired properties can be engineered through control of the structure of solids at all length scales ranging from centimeters down to the atomic

level. Students of materials are engaged in creating and understanding new materials and new materials phenomena. After they leave Wisconsin, materials graduates find careers in private industry, national laboratories, and academia.

The UW offers two graduate programs in materials: Materials Engineering (MS&E) and the Materials Science Program (MSP). Students who apply to one are usually considered by the other. Department faculty supervise the thesis work of students from both MS&E and MSP.

The vast majority of students receive financial aid in the form of fellowships, research or teaching assistantships, or advanced opportunity grants.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 26 of the required 51 credits must be in courses designed for graduate work, which may include graduate-level math—EP 547; graduate-level thermodynamics—MS&E 530; any courses taken at the 700 level or above (including classroom courses and master's research, thesis, and seminar courses); and MS&E courses numbered 400 or higher that either have a graduate student enrollment >50% in any given semester—MS&E 448, 560, 570, or assess graduate students separately from undergraduate students—MS&E 553.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW—MADISON UNDERGRADUATE

Up to 7 credits numbered 300 or above can be counted toward the minimum graduate degree credit requirement. Up to 7 credits of MS&E courses numbered 700 or above can be counted toward the minimum graduate coursework (50%) requirement. No credits can be counted toward the minimum graduate residence credit requirement. Coursework

earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With program approval and payment of the difference in tuition (between Special and graduate tuition), students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement; if that coursework is numbered 700 or above it may satisfy the minimum graduate coursework (50%) requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### **CREDITS PER TERM ALLOWED**

15 credits

### **PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

### **DOCTORAL MINOR/BREADTH REQUIREMENTS**

All doctoral students are required to complete a minor.

### **OVERALL GRADUATE GPA REQUIREMENT**

3.00 GPA required

### **OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### **PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### **ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

### **ASSESSMENTS AND EXAMINATIONS**

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

### **TIME CONSTRAINTS**

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

### **LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

## **ADMISSIONS**

**The requirements for the M.S. in Materials Engineering have been merged with Materials Science. See "Materials Science & Engineering". Admission to the program has been suspended. The information that appears in this entry is provided for the benefit of students currently admitted to the program.**

Admission to the graduate program in the Department of Materials Science and Engineering is based on the student's previous academic record, Graduate Record Exam (GRE) scores, letters of recommendation, and a personal statement. Admission is competitive.

**For more information:** Materials Science and Engineering, 1509 University Avenue #276A, Madison, WI 53706; [msaegradquery@engr.wisc.edu](mailto:msaegradquery@engr.wisc.edu); [www.engr.wisc.edu/mse](http://www.engr.wisc.edu/mse).

## **PEOPLE**

**Faculty:** Professors Babcock (chair), Eom, Kou, Lagally, Peercy, Perepezko; Associate Professor Stone (associate chair); Assistant Professors Evans, Gildrie-Voyles, Gopalan, Morgan, Szlufarska

## **MATERIALS SCIENCE AND ENGINEERING, DOCTORAL MINOR**

## **MATERIALS SCIENCE AND ENGINEERING, M.S.**

Meeting many of the most critical challenges facing modern society requires advances in the materials that underpin new technologies. Examples include providing carbon-free and renewable energy, clean water, advanced medical treatments and devices, and sustainable materials manufacturing. New materials are also required for continued economic growth in areas as diverse as aerospace, computing, and sensors.

Materials scientists and engineers at UW–Madison work toward solutions to these problems via research in a wide variety of areas.

Research areas include ceramics, computational material science; composites; corrosion; electrical, optical, magnetic materials; growth and synthesis; joining; materials for energy; metals; materials

characterization and microscopy; nanomaterials; phase transformations; photonics; polymers and biomaterials; materials for nuclear energy; quantum computing; self-assembly; semiconductors; structural materials and mechanical properties; surfaces and interfaces; sustainability; thin films; and wear.

More broadly, the field of materials science and engineering is in the middle of a revolution in how we design and deploy new materials. The old way is by trial and error, which involves laboratory testing of hundreds or thousands of candidate materials, which is costly and can take decades to develop a new materials and deploy it in practical technologies. The emerging new method leverages advances in computational materials science; materials databases, data science, and machine learning; and high throughput materials synthesis and characterization to achieve true design of materials. The goal is to develop and deploy new materials much more quickly and much lower cost than ever before. Materials design is a major theme of materials research on campus, organized around the areas of materials design via atomically controlled thin film systems, modular design of nanomaterials, and integrated experimental and computational materials engineering. Materials design and these themes cut across the research and application areas list above.

Materials research extends across campus, well beyond the boundaries of the Department of Materials Science and Engineering, so graduate students in materials can pursue research with a large number of affiliate faculty. Faculty emphasize the cross-cutting, interdisciplinary nature of materials research, which is also reflected by the diverse undergraduate backgrounds of the student body, many of whom do not have undergraduate degrees in materials.

Materials research benefits from major campus facilities, including the Materials Science Center, the Wisconsin Microscopy and Characterization Center, Wisconsin Center for Applied Microelectronics, and the Soft Materials Laboratory. Research is supported by major centers, including the National Science Foundation Materials Research Science and Engineering Center and the Grainger Institute for Engineering.

Materials graduates from Wisconsin find long-term success in careers in private industry, national laboratories, and academia in the US and around the world.

## FUNDING

The vast majority of students receive funding in the form of fellowships, research assistantships, or advanced opportunity grants. A limited number of teaching assistantships are available.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied towards the graduate degree requirement must be with graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. For additional requirements, consult the program.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Typically, no credits from undergraduate coursework may be counted toward graduate program requirements. However, with program approval, students are allowed to count up to 7 credits numbered 300 or above toward the minimum graduate degree credit requirement when taken in excess of the undergraduate degree requirements; if that coursework is numbered 700 or above it may be used to satisfy the minimum graduate coursework (50%) requirement. No credits can be counted toward the minimum graduate residence credit requirement.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Typically, no UW-Madison University Special student credits may be counted toward graduate program requirements. However, with program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW-Madison Special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement; if that coursework is numbered 700 or above it may satisfy the minimum graduate coursework (50%) requirement.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
M S & E 900	Materials Research Seminar <sup>1</sup>	1
M S & E 530	Thermodynamics of Solids	3
M S & E 551	Structure of Materials	3
M S & E 521	Advanced Polymeric Materials	3
E P/E M A 547	Engineering Analysis I	3
CBE 660	Intermediate Problems in Chemical Engineering	3
MATH 703	Methods of Applied Mathematics 1	3

MATH 704	Methods of Applied Mathematics-2	3
PHYSICS 721	Theoretical Physics-Electrodynamics	3
M S & E 752	Advanced Materials Science: Phase Transformations	3

Select two materials electives<sup>2</sup>

<sup>1</sup> Take two semesters.

<sup>2</sup> Electives are to be selected from a list of available from the program.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

Students without a researcher advisor at the end of their first year enrolled are in danger of failing to make adequate progress towards their degree. Students can be suspended from the Graduate School if they do not have an advisor.

## ASSESSMENT AND EXAMINATIONS

Students must prepare a Master's thesis, present it in a public seminar, and defend it in closed examination by their Master's committee.

## TIME CONSTRAINTS

The Master's degree is typically completed within three years.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

None.

## ADMISSIONS

Admission to the graduate program in the Department of Materials Science and Engineering is based on the student's previous academic record, Graduate Record Exam (GRE) scores, letters of recommendation, TOEFL scores for non-native English speakers, and a personal statement. Students with undergraduate degrees in science or engineering outside materials science and engineering are routinely admitted. Admission is competitive.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

### PROFESSIONAL CONDUCT

- recognize and apply principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors: Babcock, Eom, Evans, Gopalan, Kou, Lagally, Lakes, Morgan, Perepezko, Robertson, Stone, Szlufarska, Voyles; Associate Professors: Arnold, Wang; Assistant Professors: Kawasaki.

**Affiliate Faculty:** Abbott, Allen, Andrew, Ashton, Beebe, Booske, Botez, Cai, Chesler, Coppersmith, Cramer, Crone, Drugan, Eriksson, Eriten, Goldsmith, Gong, Gunasekaran, Hamers, Hitchon, Jiang, Jin, Kats, Keely, Klingenberg, Knevic, Kuech, Kulcinski, Li, Lynn, Ma, Masters, Mawst, McDermott, Murphy, Negrut, Ogle, Onellion, Osswald, Palecek, Pfefferkorn, Ploeg, Reed, Root, Rowlands, Rzchowski, Sarmadi, Shohet, Sridharan, Thelen, Turng, van der Weide, Vanderby, Weibel, Wendt, Williams, Winokur, Xu, Yu

## MATERIALS SCIENCE AND ENGINEERING, PH.D.

Meeting many of the most critical challenges facing modern society requires advances in the materials that underpin new technologies. Examples include providing carbon-free and renewable energy, clean water, advanced medical treatments and devices, and sustainable materials manufacturing. New materials are also required for continued economic growth in areas as diverse as aerospace, computing, and sensors.

Materials scientists and engineers at UW-Madison work toward solutions to these problems via research in a wide variety of areas.

Research areas include ceramics, computational material science; composites; corrosion; electrical, optical, magnetic materials; growth and synthesis; joining; materials for energy; metals; materials characterization and microscopy; nanomaterials; phase transformations; photonics; polymers and biomaterials; materials for nuclear energy;

quantum computing; self-assembly; semiconductors; structural materials and mechanical properties; surfaces and interfaces; sustainability; thin films; and wear.

More broadly, the field of materials science and engineering is in the middle of a revolution in how we design and deploy new materials. The old way is by trial and error, which involves laboratory testing of hundreds or thousands of candidate materials, which is costly and can take decades to develop a new materials and deploy it in practical technologies. The emerging new method leverages advances in computational materials science; materials databases, data science, and machine learning; and high throughput materials synthesis and characterization to achieve true design of materials. The goal is to develop and deploy new materials much more quickly and much lower cost than ever before. Materials design is a major theme of materials research on campus, organized around the areas of materials design via atomically controlled thin film systems, modular design of nanomaterials, and integrated experimental and computational materials engineering. Materials design and these themes cut across the research and application areas list above.

Materials research extends across campus, well beyond the boundaries of the Department of Materials Science and Engineering, so graduate students in materials can pursue research with a large number of affiliate faculty. Faculty emphasize the cross-cutting, interdisciplinary nature of materials research, which is also reflected by the diverse undergraduate backgrounds of the student body, many of whom do not have undergraduate degrees in materials.

Materials research benefits from major campus facilities, including the Materials Science Center, the Wisconsin Microscopy and Characterization Center, Wisconsin Center for Applied Microelectronics, and the Soft Materials Laboratory. Research is supported by major centers, including the National Science Foundation Materials Research Science and Engineering Center and the Grainger Institute for Engineering.

Materials graduates from Wisconsin find long-term success in careers in private industry, national laboratories, and academia in the US and around the world.

## FUNDING

The vast majority of students receive funding in the form of fellowships, research assistantships, or advanced opportunity grants. A limited number of teaching assistantships are available.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied towards the graduate degree requirement must be with graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. For additional requirements, consult the program.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students are allowed to count up to 7 credits numbered 300 or above toward the minimum graduate degree credit requirement when taken in excess of the undergraduate degree requirements; if that coursework is numbered 700 or above it may be used to satisfy the minimum graduate coursework (50%) requirement. No credits can be counted toward the minimum graduate residence credit requirement.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Typically, no UW-Madison University Special student credits may be counted toward graduate program requirements. However, with program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW-Madison Special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement; if that coursework is numbered 700 or above it may satisfy the minimum graduate coursework (50%) requirement.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
M S & E 900	Materials Research Seminar <sup>1</sup>	1
M S & E 530	Thermodynamics of Solids	3
M S & E 551	Structure of Materials	3
M S & E 521	Advanced Polymeric Materials	3
E P/E M A 547	Engineering Analysis I	3
CBE 660	Intermediate Problems in Chemical Engineering	3
MATH 703	Methods of Applied Mathematics 1	3
MATH 704	Methods of Applied Mathematics-2	3
PHYSICS 721	Theoretical Physics-Electrodynamics	3

M S & E 752	Advanced Materials Science: Phase Transformations	3
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Select two materials electives<sup>2</sup>

<sup>1</sup> Take two semesters.

<sup>2</sup> Electives must be selected from a list available from the program.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

Students without a researcher advisor at the end of their first year enrolled are in danger of failing to make adequate progress towards their degree. Students can be suspended from the Graduate School if they do not have an advisor.

## ASSESSMENT AND EXAMINATIONS

1. Students must pass a qualifying exam in Materials Science and Engineering. The exam must be attempted within 13 months of the start of the student's first semester enrolled. If the first attempt is not passed, a second attempt is required within four months.
2. Students must pass a preliminary exam / thesis proposal exam. This exam is typically undertaken by the end of the fourth semester enrolled and must be undertaken by the end of the fifth semester. If the first attempt is not passed, a second attempt is required within three months.
3. Students must prepare a doctoral dissertation, present it in a public seminar, defend it in closed examination by their doctoral committee, and deposit it with the Graduate School.

## TIME CONSTRAINTS

The Ph.D. is typically completed within six years. A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary

examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

None.

## ADMISSIONS

Admission to the graduate program in the Department of Materials Science and Engineering is based on the student's previous academic record, Graduate Record Exam (GRE) scores, letters of recommendation, TOEFL scores for non-native English speakers, and a personal statement. Students with undergraduate degrees in science or engineering outside materials science and engineering are routinely admitted. Admission is competitive.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate an ability to synthesize knowledge from a subset of the biological, physical, and social sciences to help frame problems critical to the future of their discipline.
- conduct original research.
- demonstrate an ability to create new knowledge and communicate it to their peers.

### PROFESSIONAL CONDUCT

- fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors: Babcock, Eom, Evans, Gopalan, Kou, Lagally, Lakes, Morgan, Perepezko, Robertson, Stone, Szlufarska, Voyles; Associate Professors: Arnold, Wang; Assistant Professors: Kawasaki.

**Affiliate Faculty:** Abbott, Allen, Andrew, Ashton, Beebe, Booske, Botez, Cai, Chesler, Coppersmith, Cramer, Crone, Drugan, Eriksson, Eriten, Goldsmith, Gong, Gunasekaran, Hamers, Hitchon, Jiang, Jin, Kats, Keely, Klingenberg, Knevic, Kuech, Kulcinski, Li, Lynn, Ma, Masters, Mawst, McDermott, Murphy, Negrut, Ogle, Onellion, Osswald, Palecek, Pfefferkorn, Ploeg, Reed, Root, Rowlands, Rzchowski, Sarmadi, Shohet, Sridharan, Thelen, Turng, van der Weide, Vanderby, Weibel, Wendt, Williams, Winokur, Xu, Yu

# MATHEMATICS

**Administrative Unit:** Mathematics

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A., Ph.D.

**Minors and Certificates:** Doctoral Minor

**Named Options:** Foundations of Advanced Studies (M.A.)

**Specializations:** Algebra and Number Theory, Analysis and Differential Equations, Applied and Computational Mathematics, Logic, Geometry and Topology, Probability

The department offers the doctor of philosophy degree with a major in mathematics and a master of arts degree in mathematics.

The Ph.D. degree requires proficiency in basic and advanced graduate mathematics and the completion of a dissertation containing a significant piece of original research in some area of mathematics. The scope of the research program in mathematics is broad. The Ph.D. specialty and dissertation may be in any area of mathematics, including but not limited to algebra, algebraic geometry, applied mathematics, combinatorics, computational mathematics, complex analysis, differential equations, differential geometry, dynamical systems, harmonic analysis, logic, mathematical biology, number theory, probability, and topology. A complete list of faculty and their areas of expertise is available through the department website (<https://www.math.wisc.edu/graduate>).

Students in the Ph.D. program also have the option to earn a master of arts degree.

The M.A. degree is available with the named option titled foundations of advanced mathematics. It is designed to strengthen the student's mathematics background and enhance the opportunities for applications to Ph.D. programs and for employment as a mathematician in nonacademic environments.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Mathematics, Doctoral Minor (p. 511)
- Mathematics, M.A. (p. 512)
- Mathematics, Ph.D. (p. 513)

## PEOPLE

**Faculty:** Professors Angenent, Assadi, Bolotin, Boston, Căldăraru, Craciun, Denisov, Ellenberg, Feldman, Gong, Jin, Lempp, Mari Beffa (chair), Miller, Mitchell, Paul, Seeger, Seppäläinen, Smith, Terwilliger, Thiffeault, Viaclovsky, Waleffe, Yang, Zlatoš; Associate Professors Anderson, Arinkin, Gurevich, Maxim, Roch, Stechmann, Valkó; Assistant Professors Andrews, Dymarz, Erman, Kent, Kim, Li, Marshall, Sam, Spagnolie, Stovall, Street, Tran, B. Wang, L. Wang, M. Wood, P. Wood, Yin; Affiliate Faculty Bach, Cai, Del Pia, Ferris, Ron, Sifakis.

# MATHEMATICS, DOCTORAL MINOR

## REQUIREMENTS

### I. THE MATH DEPARTMENT MINOR REQUIREMENTS

The general requirements for a minor are stated in the Guide. Listed here are the requirements for a mathematics minor under Option A. The mathematics department does not supervise programs under Option B.

1. A math minor consists of at least 12 graduate credits in mathematics courses that are approved by a math minor advisor. These courses must be taken as a graduate student. All courses must be completed with a grade of B or better. Graduate mathematics credits transferred from another university may be considered but prior approval by the math minor advisor is necessary.
2. At least 6 credits must be in courses above Math 700.
3. At most one course cross-listed with the major department may be used for the math minor. This course must be staffed by the mathematics department and it may not be applied to any requirement for the major department.
4. According to rules of the Graduate School, graduate credit can be given only for courses above 300. The math department has a more restrictive policy; it typically does not consider math courses below 500 as graduate courses. Hence, credit for math classes below 500 will not be counted for the doctoral minor in mathematics.

### II. THE PROCESS

1. Students should plan which courses they would like to use to meet the minor requirements. They can use this form ([http://www.math.wisc.edu/files/Math\\_Minor\\_Outside\\_Form.pdf](http://www.math.wisc.edu/files/Math_Minor_Outside_Form.pdf)) for planning the coursework. Students and the math minor advisor complete this form and students keep a copy of it. (Students can print a copy of the form and fill in some parts before the meeting.) Completion of the planning form is not required, but a completed form, signed by a math minor advisor, does offer a guarantee that the math department will accept the courses for a minor. The course program for a math minor must be approved by a math minor advisor at some point, but this approval could also be obtained after the courses have been taken.
2. Students will need a form signed by a math minor advisor certifying approval of their course selection for the math minor, and/or certifying completion of the minor requirements. The department may have forms for these purposes, or students can use a Math Department Minor Agreement Form ([http://atrium.math.wisc.edu/sites/default/files/graduate\\_minor\\_in\\_mathematics\\_form.pdf](http://atrium.math.wisc.edu/sites/default/files/graduate_minor_in_mathematics_form.pdf)).
3. When everything is completed, students need to have the Graduate School warrant signed. The major department will request a warrant from the Graduate School. Students take the warrant to one of the math minor advisors for a signature and then take it back to the major department. For more information, contact the graduate administrator at [grad\\_program@math.wisc.edu](mailto:grad_program@math.wisc.edu)

## ADMISSIONS

Ph.D. students who are not students in the mathematics department and wish to minor in mathematics should contact one of the math department minor advisors (<http://math.wisc.edu/contactus/#gradminor>).

## PEOPLE

**Faculty:** Professors Angenent, Assadi, Bolotin, Boston, Căldăraru, Craciun, Denissov, Ellenberg, Feldman, Gong, Jin, Lempp, Mari Beffa (chair), Miller, Mitchell, Paul, Seeger, Seppäläinen, Smith, Terwilliger, Thiffeault, Viaclovsky, Waleffe, Yang, Zlatoš; Associate Professors Anderson, Arinkin, Gurevich, Maxim, Roch, Stechmann, Valkó; Assistant Professors Andrews, Dymarz, Erman, Kent, Kim, Li, Marshall, Sam, Spagnolie, Stovall, Street, Tran, B. Wang, L. Wang, M. Wood, P. Wood, Yin; Affiliate Faculty Bach, Cai, Del Pia, Ferris, Ron, Sifakis.

## MATHEMATICS, M.A.

The department offers the doctor of philosophy degree with a major in mathematics and a master of arts degree in mathematics.

The Ph.D. degree requires proficiency in basic and advanced graduate mathematics and the completion of a dissertation containing a significant piece of original research in some area of mathematics. The scope of the research program in mathematics is broad. The Ph.D. specialty and dissertation may be in any area of mathematics, including but not limited to algebra, algebraic geometry, applied mathematics, combinatorics, computational mathematics, complex analysis, differential equations, differential geometry, dynamical systems, harmonic analysis, logic, mathematical biology, number theory, probability, and topology. A complete list of faculty and their areas of expertise is available through the department website (<https://www.math.wisc.edu>).

Students in the Ph.D. program also have the option to earn a master of arts degree.

The M.A. degree is available with the named option titled foundations of advanced mathematics. It is designed to strengthen the student's mathematics background and enhance the opportunities for applications to Ph.D. programs and for employment as a mathematician in nonacademic environments.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., with available named option in Foundations of Advanced Studies

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

The coursework must consist of graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students in the M.A. program are allowed to count no more than 14 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No more than 7 credits from a UW-Madison undergraduate degree are allowed to count toward the degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

M.A.: 30 graduate credits related to mathematics, including at least 24 credits in the mathematics department (cross-listed courses included). At least 12 credits from a specified list of 700 core courses must be taken. Advanced computer science which involves substantial programming. (Requirement waived with two passed qualifying exams.)

M.A., FAS option: MATH 522 Analysis II and MATH 542 Modern Algebra. 30 graduate credits in mathematics, including at least 12 credits from a specified list of 700 core courses must be taken.

### OVERALL GRADUATE GPA REQUIREMENT

M.A.: 3.3 GPA required

M.A., FAS option: 3.0 GPA required

### OTHER GRADE REQUIREMENTS

At least 12 credits from a specified list of 700 courses are required to be passed with grade B or higher.



## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing.
2. Probation.
3. Unsatisfactory progress.

## ADVISOR / COMMITTEE

M.A.: Students are recommended to meet with an advisor.

M.A., FAS option: Before each fall semester, students will submit a tentative plan of study and meet with a graduate advisor.

## ASSESSMENTS AND EXAMINATIONS

n/a

## TIME CONSTRAINTS

Two years. Extensions have to be approved by the program.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Admission is competitive. Applicants to the Ph.D. program are automatically considered for financial support. For more information about application to the Ph.D. and M.A. programs, see the department's admission website (<https://www.math.wisc.edu/graduate/admissions>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students learn a substantial body of mathematics presented in introductory graduate level courses in mathematics.
- Students select and utilize appropriate methodologies to solve problems.
- Students communicate clearly in written/oral presentations.

### PROFESSIONAL CONDUCT

- Students recognize and apply principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Angenent, Assadi, Bolotin, Boston, Căldăraru, Craciun, Denisov, Ellenberg, Feldman, Gong, Jin, Lempp, Mari Beffa (chair), Miller, Mitchell, Paul, Seeger, Seppäläinen, Smith, Terwilliger, Thiffeault, Viaclovsky, Waleffe, Yang, Zlatoš; Associate Professors Anderson, Arinkin, Gurevich, Maxim, Roch, Stechmann, Valkó; Assistant Professors Andrews, Dymarz, Erman, Kent, Kim, Li, Marshall, Sam, Spagnolie, Stovall, Street,

Tran, B. Wang, L. Wang, M. Wood, P. Wood, Yin; Affiliate Faculty Bach, Cai, Del Pia, Ferris, Ron, Sifakis.

## MATHEMATICS, PH.D.

The department offers the doctor of philosophy degree with a major in mathematics and a master of arts degree in mathematics.

The Ph.D. degree requires proficiency in basic and advanced graduate mathematics and the completion of a dissertation containing a significant piece of original research in some area of mathematics. The scope of the research program in mathematics is broad. The Ph.D. specialty and dissertation may be in any area of mathematics, including but not limited to algebra, algebraic geometry, applied mathematics, combinatorics, computational mathematics, complex analysis, differential equations, differential geometry, dynamical systems, harmonic analysis, logic, mathematical biology, number theory, probability, and topology. A complete list of faculty and their areas of expertise is available through the department website (<https://www.math.wisc.edu/graduate>).

Students in the Ph.D. program also have the option to earn a master of arts degree.

The M.A. degree is available with the named option titled foundations of advanced mathematics. It is designed to strengthen the student's mathematics background and enhance the opportunities for applications to Ph.D. programs and for employment as a mathematician in nonacademic environments.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

54 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

For students in the Ph.D. program the coursework in the mathematics department is expected to consist only of graduate-level coursework; courses with the Graduate Level Coursework attribute are identified

and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### **PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

With program approval, students in the Ph.D. program are allowed to count no more than 22 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

No more than 7 credits from a UW–Madison undergraduate degree are allowed to count toward the degree. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### **CREDITS PER TERM ALLOWED**

15 credits

### **PROGRAM-SPECIFIC COURSES REQUIRED**

No program-specific courses required.

### **DOCTORAL MINOR/BREADTH REQUIREMENTS**

All doctoral students are required to complete a minor.

### **OVERALL GRADUATE GPA REQUIREMENT**

3.3 GPA required

### **OTHER GRADE REQUIREMENTS**

No additional grade requirements.

### **PROBATION POLICY**

The status of a student can be one of three options:

1. Good standing.
2. Probation.
3. Unsatisfactory progress.

### **ADVISOR / COMMITTEE**

Students who are not yet working with a dissertation advisor are required to meet semiannually with their academic advisor. All students must have a dissertation advisor by the end of the sixth semester.

### **ASSESSMENTS AND EXAMINATIONS**

All students are required to pass at least one qualifying exam by the beginning of their fourth semester (the spring semester of the second year), and two by the beginning of their sixth semester (the spring semester of the third year.)

Students must satisfy all the requirements for dissertator status by the end of the eighth semester (end of fourth year).

### **TIME CONSTRAINTS**

Eight years. Extensions have to be approved by the program.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### **LANGUAGE REQUIREMENTS**

No language requirements.

## **ADMISSIONS**

Admission is competitive. Applicants to the Ph.D. program are automatically considered for financial support. For more information about application to the Ph.D. and M.A. programs, see the department's admission website (<https://www.math.wisc.edu/graduate/admissions>).

## **LEARNING OUTCOMES**

### **KNOWLEDGE AND SKILLS**

- Students learn a substantial body of mathematics in introductory and research level graduate courses in mathematics.
- Students complete a dissertation under the guidance of an advisor. The dissertation should make an original and substantive contribution to its subject matter.
- Students demonstrate breadth within the learning experiences.
- Students present research in seminar talks, conferences or publications.
- Students communicate complex ideas in a clear and understandable manner.

### **PROFESSIONAL CONDUCT**

- Students foster ethical and professional conduct.

## **PEOPLE**

**Faculty:** Professors Angenent, Assadi, Bolotin, Boston, Căldăraru, Craciun, Denisso, Ellenberg, Feldman, Gong, Jin, Lempp, Mari Beffa (chair), Miller, Mitchell, Paul, Seeger, Seppäläinen, Smith, Terwilliger, Thiffeault, Viaclovsky, Waleffe, Yang, Zlatoš; Associate Professors Anderson, Arinkin, Gurevich, Maxim, Roch, Stechmann, Valkó; Assistant Professors Andrews, Dymarz, Erman, Kent, Kim, Li, Marshall, Sam, Spagnolie, Stovall, Street, Tran, B. Wang, L. Wang, M. Wood, P. Wood, Yin; Affiliate Faculty Bach, Cai, Del Pia, Ferris, Ron, Sifakis.

# MEAD WITTER SCHOOL OF MUSIC

**Administrative Unit:** Mead Witter School of Music

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., M.M., DMA, Ph.D.

**Degrees Offered:** M.A. in Music; M.M. in Music: Education; M.M. in Music: Performance; DMA in Music: Performance; Ph.D. in Music

**Minors and Certificates:** Doctoral Minor in Music

**Specializations:** Music History, Ethnomusicology, and Music Theory

The mission of the Mead Witter School of Music is:

- to provide a rich, integrated program of undergraduate and graduate education that promotes the highest levels of professional, creative, and scholarly development while challenging students to achieve their greatest potential;
- to cultivate an environment that inspires creativity, stimulates intellectual curiosity, and fosters critical thinking; and
- to serve the university community, the public, and the profession through performance, composition, scholarship, music education, outreach, and engagement.

## DEGREES AND MAJORS

The master of music is offered in music: performance with concentrations in brass; composition; percussion; piano performance; collaborative piano; piano performance and pedagogy; organ; strings; string development; guitar; voice; opera; woodwinds; multiple woodwinds; choral conducting; orchestral conducting; wind conducting.

The master of music is also offered in music: education. This degree is appropriate for those who wish to emphasize music content. Those who wish to explore music education within the context of education at large should consider the curriculum and instruction M.S. program in the School of Education.

The master of arts in music is offered with concentrations in ethnomusicology, music history, and music theory.

A double master's degree with the School of Library and Information Studies is also offered.

The DMA (doctor of musical arts) and the Ph.D. are the highest degrees conferred by the Mead Witter School of Music. The DMA is granted for evidence of general proficiency and distinctive attainment in a specialized field of performance. The student's ability in independent investigation is demonstrated through a series of recitals and in a final project presenting original research or creative scholarship.

The DMA in music: performance is offered with concentrations in: brass; composition; percussion; piano performance; collaborative piano; piano performance and pedagogy; organ; strings (includes guitar); string development; voice; opera; woodwinds; multiple woodwinds; choral conducting; orchestral conducting; wind conducting.

The Ph.D. in music, a research degree, is offered in the areas of ethnomusicology, historical musicology, and music theory.

Master's degrees require a minimum of 30 credits; Ph.D. and DMA degrees require significant work beyond the master's degree, including

the extensive independent work described above. Each degree track varies slightly and may impose additional requirements. Contact the Mead Witter School of Music graduate office for complete explanations of the degrees offered at the master's or doctoral levels: [gradadmissions@music.wisc.edu](mailto:gradadmissions@music.wisc.edu)

## FACILITIES

The Mead Witter School of Music enriches students' educational experience by hosting guest artists and scholars for master classes, recitals, colloquia, seminars, and festivals. Mead Witter School of Music organizations and ensembles perform more than 350 recitals and concerts every year, making a significant contribution to the cultural life of the university and the wider Madison community.

The Mosse Humanities Building, built in 1969, houses most of the music classrooms, rehearsal rooms, faculty studios, and 111 practice rooms. Most recitals and concerts take place in one of three performance spaces: Mills Concert Hall, Morphy Recital Hall, and Eastman Organ Recital Hall. The school's extensive collection of instruments, both common and unusual, is available to both faculty and students. Music Hall with its clock tower, built in 1879, is a campus landmark. Renovated in 1985, it is the home of the opera program. The new Hamel Music Center is scheduled for opening in Fall, 2018 and will include a concert hall, a recital hall, and a large ensemble rehearsal space.

Memorial Library is the home of the Mills Music Library, which offers extensive research and circulating collections, attractive study space, and personal staff assistance with research. Music materials on campus number over half a million, ranging from scores and sheet music to archival collections and historic audio recordings. Through Mills Music Library and other UW-Madison libraries, students have access to a wide range of online research databases as well as millions of articles, books, and streaming media. All genres of music are represented, with notably strong collections in Americana and ethnic music. Nationally known special collections include the Tams-Witmark Collection, a treasury of early American musical theater materials, and the Wisconsin Music Archives.

The Mead Witter School of Music is a member of the National Association of Schools of Music (NASM), the national accreditation body for schools of music, and was reaccredited in 2014.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Music, Doctoral Minor (p. 516)
- Music, M.A. (p. 516)
- Music, Ph.D. (p. 518)
- Music: Education, M.M. (p. 521)
- Music: Performance, DMA (p. 523)
- Music: Performance, M.M. (p. 526)

## PEOPLE

**Faculty:** Professors Cook (director), Aley, Bartley, Blasius, Bowles, Calderon, Chisholm, Crook, Davis, Dembski, DiSanza, Dill, Doing, Earp, Fischer, Fulmer, Hyer, Jensen, Johnson, Jutt, Karp, Koza, Leckrone, Perry, Potter, Radano, Rowe, Schaffer, Schwendinger, Smith, Stowe, Swack, B. Taylor, C. Taylor, Thimmig, Vardi; Associate Professors Dobbs, Hetzler,

Johnson, Teeple, Vallon; Assistant Professors Grabois, Park Altino, Wallmann

## MUSIC, DOCTORAL MINOR

### REQUIREMENTS

The music Ph.D. and music: performance DMA programs in the Mead Witter School of Music require a minor field of study. Doctoral minors provide students with the opportunity to broaden their course of graduate study. Students, in consultation with their major professor and the director of graduate studies, may choose among internal minor options within the school, minors in other fields, or even a self-designed minor. Most minors require 9–12 credits of graduate-level work. Some restrictions apply to combinations of certain minor and major programs. For details of the specific course work involved and options available, contact the Mead Witter School of Music graduate office.

### PEOPLE

**Faculty:** Professors Cook (director), Aley, Bartley, Blasius, Bowles, Calderon, Chisholm, Crook, Davis, Dembski, DiSanza, Dill, Doing, Earp, Fischer, Fulmer, Hyer, Jensen, Johnson, Jutt, Karp, Koza, Leckrone, Perry, Potter, Radano, Rowe, Schaffer, Schwendinger, Smith, Stowe, Swack, B. Taylor, C. Taylor, Thimmig, Vardi; Associate Professors Dobbs, Hetzler, Johnson, Teeple, Vallon; Assistant Professors Grabois, Park Altino, Wallmann

## MUSIC, M.A.

The mission of the Wead Mitter School of Music is:

- to provide a rich, integrated program of undergraduate and graduate education that promotes the highest levels of professional, creative, and scholarly development while challenging students to achieve their greatest potential;
- to cultivate an environment that inspires creativity, stimulates intellectual curiosity, and fosters critical thinking; and
- to serve the university community, the public, and the profession through performance, composition, scholarship, music education, outreach, and engagement.

## DEGREES AND MAJORS

The master of music is offered in music: performance with concentrations in brass; composition; percussion; piano performance; collaborative piano; piano performance and pedagogy; organ; strings; string development; guitar; voice; opera; woodwinds; multiple woodwinds; choral conducting; orchestral conducting; wind conducting.

The master of music is also offered in music: education. This degree is appropriate for those who wish to emphasize music content. Those who wish to explore music education within the context of education at large should consider the curriculum and instruction M.S. program in the School of Education.

The master of arts in music is offered with concentrations in ethnomusicology, music history, and music theory.

A double master's degree with the School of Library and Information Studies is also offered.

The DMA (doctor of musical arts) and the Ph.D. are the highest degrees conferred by the Mead Witter School of Music. The DMA is granted for evidence of general proficiency and distinctive attainment in a specialized field of performance. The student's ability in independent investigation is demonstrated through a series of recitals and in a final project presenting original research or creative scholarship.

The DMA in music: performance is offered with concentrations in: brass; composition; percussion; piano performance; collaborative piano; piano performance and pedagogy; organ; strings (includes guitar); string development; voice; opera; woodwinds; multiple woodwinds; choral conducting; orchestral conducting; wind conducting.

The Ph.D. in music, a research degree, is offered in the areas of ethnomusicology, historical musicology, and music theory.

Master's degrees require a minimum of 30 credits; Ph.D. and DMA degrees require significant work beyond the master's degree, including the extensive independent work described above. Each degree track varies slightly and may impose additional requirements. Contact the Mead Witter School of Music graduate office for complete explanations of the degrees offered at the master's or doctoral levels: [gradadmissions@music.wisc.edu](mailto:gradadmissions@music.wisc.edu)

### FACILITIES

The Mead Witter School of Music enriches students' educational experience by hosting guest artists and scholars for master classes, recitals, colloquia, seminars, and festivals. Mead Witter School of Music organizations and ensembles perform more than 350 recitals and concerts every year, making a significant contribution to the cultural life of the university and the wider Madison community.

The Mosse Humanities Building, built in 1969, houses most of the music classrooms, rehearsal rooms, faculty studios, and 111 practice rooms. Most recitals and concerts take place in one of three performance spaces: Mills Concert Hall, Morphy Recital Hall, and Eastman Organ Recital Hall. The school's extensive collection of instruments, both common and unusual, is available to both faculty and students. Music Hall with its clock tower, built in 1879, is a campus landmark. Renovated in 1985, it is the home of the opera program. The new Hamel Music Center is scheduled for opening in Fall, 2018 and will include a concert hall, a recital hall, and a large ensemble rehearsal space.

Memorial Library is the home of the Mills Music Library, which offers extensive research and circulating collections, attractive study space, and personal staff assistance with research. Music materials on campus number over half a million, ranging from scores and sheet music to archival collections and historic audio recordings. Through Mills Music Library and other UW–Madison libraries, students have access to a wide range of online research databases as well as millions of articles, books, and streaming media. All genres of music are represented, with notably strong collections in Americana and ethnic music. Nationally known special collections include the Tams–Witmark Collection, a treasury of early American musical theater materials, and the Wisconsin Music Archives.

The Mead Witter School of Music is a member of the National Association of Schools of Music (NASM), the national accreditation body for schools of music, and was reaccredited in 2014.

## FUNDING

Through the generosity of Paul J. Collins, the Mead Witter School of Music is the recipient of a substantial fellowship fund which, in combination with the Graduate School and University Foundation, allows the school to offer multiple-year funding to the highest quality graduate students in performance. The Collins fellowships, along with The Lorna Wendt and Anonymous Fund Fellowships for Choral and Voice students are offered as Wisconsin Distinguished Fellowships and provide full tuition and fees, a generous stipend, additional funds, and comprehensive health care. Nomination by a performance faculty member—usually following an on-site audition—is required for consideration.

The Mead Witter School of Music also offers teaching and project assistantships in music history, music theory, piano, conducting, voice, and other performance areas. These positions offer tuition remission plus a salary and health care benefits. In addition, the Mead Witter School of Music selects qualified applicants for the Chancellor's Fellowship, University Fellowship, and Advanced Opportunity Fellowship. The UW–Madison Office of Student Financial Services assists students in obtaining general grants and loans. All Mead Witter School of Music students who receive funding are required to enroll full-time with 8–12 graduate credits.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., with available tracks in ethnomusicology, historical musicology, and music theory

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the coursework (15 out of the minimum of 30 total credits) in each program must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Each track of study has different course requirements. Students must consult with their advisor in their first semester to determine expected course of study.

### OVERALL GRADUATE GPA REQUIREMENT

Students must maintain a cumulative grade point average (GPA) of 3.25.

### OTHER GRADE REQUIREMENTS

Students must earn a B or above in all coursework.

### PROBATION POLICY

M.A. students who fail to make satisfactory progress in any of the four following areas: grades, course load, time constraints, or exams, will be notified in writing by the DGS. At the end of the second semester of failing to make satisfactory progress the student is placed on probation effective the next semester. This action suspends financial aid (but does not affect loans or work-study). For details see Satisfactory Progress for Master's Students (<http://uwsom.wpengin.com/wp-content/uploads/2014/05/MastersSatisfactoryProgress.pdf>).

### ADVISOR / COMMITTEE

M.A. students have one advisor and two committees. The advisor is their principal faculty mentor. The two committees are:

1. thesis committee
2. exam committee.

For more details see the School of Music Graduate Handbook (<http://www.music.wisc.edu/wp-content/uploads/2014/05/SOM-Graduate-Handbook-Booklet.pdf>).

### ASSESSMENTS AND EXAMINATIONS

All M.A. tracks require a formal master's thesis.

### TIME CONSTRAINTS

The following time limits apply to the master's degrees in the School of Music. Exceptions to the following can be made only upon recommendation of the graduate committee and approval of the DGS (director of graduate studies):

1. All M.M. and M.A. students with university funding (TA, PA, fellowship, etc.) must complete all requirements for the master's degree within four semesters (not counting summer sessions or M.A. thesis credits), or six semesters if the funding appointment is more than 33.33%.

- Part-time and unfunded M.M. and M.A. students who have not completed the degree in seven years should submit a letter of intent and statement of progress to the DGS (director of graduate studies). The letter should include a statement of intent to complete the degree, factors that have impeded progress, what work they need to complete to finish the degree, as well as how and when they intend to complete the degree.

## LANGUAGE REQUIREMENTS

M.A.: historical musicology track: intermediate German reading

M.A.: ethnomusicology track: intermediate foreign language or French or German

M.A.—theory track: no requirement

## ADMISSIONS

### ADMISSION TO THE MASTER OF MUSIC AND MASTER OF ARTS PROGRAMS

Minimum admission requirements of the Graduate School apply to all applicants for graduate study in music. The Mead Witter School of Music has additional requirements. Applicants should have a bachelor's degree in music or equivalent foundational course work as required by each area of study. An undergraduate GPA of 3.0 (on a 4.0 scale, calculated on the last 60 credit hours) is necessary for full admission. M.M. applicants in music education should have an undergraduate degree in music education and at least two years of music teaching experience—interested students are encouraged to contact the music education faculty prior to application. M.A. applicants are required to submit Graduate Record Exam (GRE) scores and samples of research and writing. Both the M.A. and the M.M. programs involve substantial academic work and require excellent reading, writing, and speaking skills. Therefore, all international students are required to submit a TOEFL score. See the Mead Witter School of Music graduate admissions website (<http://www.music.wisc.edu/admissions/graduate>) for information on minimum score requirements. The Mead Witter School of Music does **not** waive the TOEFL score requirement for students who have completed a degree at an American university. Typically, performance applicants are required to audition in person. For details on specific audition requirements and additional application materials, visit the Mead Witter School of Music graduate admissions website (<http://www.music.wisc.edu/admissions/graduate>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- articulates and critiques the theories, research methods, and approaches to inquiry in music-related scholarship.
- identifies and employs a variety of sources and analytical approaches to inform discussion of topics in music.
- demonstrates knowledge of musical study in historical and cultural contexts.
- selects appropriate methodologies for research and discussion of musical topics.
- rationally evaluates and synthesizes information from both primary sources and secondary scholarship, posing original questions and offering fresh insight into musical topics.

- communicates clearly, both verbally and in writing, to colleagues in the field.

## PROFESSIONAL CONDUCT

- recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Cook (director), Aley, Bartley, Blasius, Bowles, Calderon, Chisholm, Crook, Davis, Dembski, DiSanza, Dill, Doing, Earp, Fischer, Fulmer, Hyer, Jensen, Johnson, Jutt, Karp, Koza, Leckrone, Perry, Potter, Radano, Rowe, Schaffer, Schwendinger, Smith, Stowe, Swack, B. Taylor, C. Taylor, Thimmig, Vardi; Associate Professors Dobbs, Hetzler, Johnson, Teeple, Vallon; Assistant Professors Grabois, Park Altino, Wallmann

## MUSIC, PH.D.

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- to cultivate an environment that inspires creativity, stimulates intellectual curiosity, and fosters critical thinking; and
- to serve the university community, the public, and the profession through performance, composition, scholarship, music education, outreach, and engagement.

## DEGREES AND MAJORS

The master of music is offered in music: performance with concentrations in brass; composition; percussion; piano performance; collaborative piano; piano performance and pedagogy; organ; strings; string development; guitar; voice; opera; woodwinds; multiple woodwinds; choral conducting; orchestral conducting; wind conducting.

The master of music is also offered in music: education. This degree is appropriate for those who wish to emphasize music content. Those who wish to explore music education within the context of education at large should consider the curriculum and instruction M.S. program in the School of Education.

The master of arts in music is offered with concentrations in ethnomusicology, music history, and music theory.

A double master's degree with the School of Library and Information Studies is also offered.

The DMA (doctor of musical arts) and the Ph.D. are the highest degrees conferred by the Mead Witter School of Music. The DMA is granted for evidence of general proficiency and distinctive attainment in a specialized field of performance. The student's ability in independent investigation is demonstrated through a series of recitals and in a final project presenting original research or creative scholarship.

The DMA in music: performance is offered with concentrations in: brass; composition; percussion; piano performance; collaborative piano; piano performance and pedagogy; organ; strings (includes guitar); string

development; voice; opera; woodwinds; multiple woodwinds; choral conducting; orchestral conducting; wind conducting.

The Ph.D. in music, a research degree, is offered in the areas of ethnomusicology, historical musicology, and music theory.

Master's degrees require a minimum of 30 credits; Ph.D. and DMA degrees require significant work beyond the master's degree, including the extensive independent work described above. Each degree track varies slightly and may impose additional requirements. Contact the Mead Witter School of Music graduate office for complete explanations of the degrees offered at the master's or doctoral levels: [gradadmissions@music.wisc.edu](mailto:gradadmissions@music.wisc.edu)

## FACILITIES

The Mead Witter School of Music enriches students' educational experience by hosting guest artists and scholars for master classes, recitals, colloquia, seminars, and festivals. Mead Witter School of Music organizations and ensembles perform more than 350 recitals and concerts every year, making a significant contribution to the cultural life of the university and the wider Madison community.

The Mosse Humanities Building, built in 1969, houses most of the music classrooms, rehearsal rooms, faculty studios, and 111 practice rooms. Most recitals and concerts take place in one of three performance spaces: Mills Concert Hall, Morphy Recital Hall, and Eastman Organ Recital Hall. The school's extensive collection of instruments, both common and unusual, is available to both faculty and students. Music Hall with its clock tower, built in 1879, is a campus landmark. Renovated in 1985, it is the home of the opera program. The new Hamel Music Center is scheduled for opening in Fall, 2018 and will include a concert hall, a recital hall, and a large ensemble rehearsal space.

Memorial Library is the home of the Mills Music Library, which offers extensive research and circulating collections, attractive study space, and personal staff assistance with research. Music materials on campus number over half a million, ranging from scores and sheet music to archival collections and historic audio recordings. Through Mills Music Library and other UW-Madison libraries, students have access to a wide range of online research databases as well as millions of articles, books, and streaming media. All genres of music are represented, with notably strong collections in Americana and ethnic music. Nationally known special collections include the Tams-Witmark Collection, a treasury of early American musical theater materials, and the Wisconsin Music Archives.

The Mead Witter School of Music is a member of the National Association of Schools of Music (NASM), the national accreditation body for schools of music, and was reaccredited in 2014.

## FUNDING

Through the generosity of Paul J. Collins, the Mead Witter School of Music is the recipient of a substantial fellowship fund which, in combination with the Graduate School and University Foundation, allows the school to offer multiple-year funding to the highest quality graduate students in performance. The Collins fellowships, along with The Lorna Wendt and Anonymous Fund Fellowships for Choral and Voice students are offered as Wisconsin Distinguished Fellowships and provide full tuition and fees, a generous stipend, additional funds, and comprehensive health care. Nomination by a performance faculty member—usually following an on-site audition—is required for consideration.

The Mead Witter School of Music also offers teaching and project assistantships in music history, music theory, piano, conducting, voice, and other performance areas. These positions offer tuition remission plus a salary and health care benefits. In addition, the Mead Witter School of Music selects qualified applicants for the Chancellor's Fellowship, University Fellowship, and Advanced Opportunity Fellowship. The UW-Madison Office of Student Financial Services assists students in obtaining general grants and loans. All Mead Witter School of Music students who receive funding are required to enroll full-time with 8–12 graduate credits.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D., with available tracks in ethnomusicology, historical musicology, and music theory

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

Ph.D.—ethnomusicology track: 72 credits

Ph.D.—historical musicology track: 69 credits

Ph.D.—music theory track; 63 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to up to 30 credits of graduate coursework from other institutions in the form of a master's degree or the equivalent. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW-Madison

Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Each track of study has different course requirements. Students must consult with their advisor in their first semester to determine expected course of study.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor consisting of at least 9 credits (most are 12 credits).

## OVERALL GRADUATE GPA REQUIREMENT

Students must maintain a cumulative grade point average (GPA) of 3.25.

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all coursework.

## PROBATION POLICY

Ph.D. students who fail to make satisfactory progress in any of the following four areas: grades, course load, time constraints, or exams, will be notified in writing by the DGS. At the end of the second semester of failing to make satisfactory progress the student is placed on probation effective the next semester. This action suspends financial aid (but does not affect loans or work-study). For details see Satisfactory Progress for Doctoral Students (<http://uwsom.wpengine.com/wp-content/uploads/2014/05/DoctoralSatisfactoryProgressDocument.pdf>).

## ADVISOR / COMMITTEE

Ph.D. students have one advisor and two committees. The advisor is their principal faculty mentor. The two committees are:

1. preliminary exam committee
2. dissertation committee.

For more details see the School of Music Graduate Handbook (<http://www.music.wisc.edu/wp-content/uploads/2014/05/SOM-Graduate-Handbook-Booklet.pdf>).

## ASSESSMENTS AND EXAMINATIONS

All Ph.D. students are required to take preliminary written and oral exams after all coursework (except for research or dissertation credit) has been completed.

## TIME CONSTRAINTS

DMA and Ph.D. students in the School of Music are allowed a maximum of four calendar years from the date of enrollment in the program to complete all coursework requirements and successfully pass preliminary examinations. A student not completing the course requirements (apart from the dissertation or project requirements) by the end of the fourth year will be placed on probation for the following 12 months. During this period, the student will not be eligible for financial aid. A student who fails to complete the coursework requirements and pass preliminary examinations during the 12-month probation period may be withdrawn from the program. The Doctoral Research Project Committee (DPRC) or Ph.D. dissertation committee may grant up to a one-semester extension to the above guidelines. Exceptions beyond that can be made only upon

recommendation of the graduate committee and approval of the DGS (director of graduate studies).

## LANGUAGE REQUIREMENTS

Ph.D.—ethnomusicology track: Intermediate-level reading proficiency is required in two research-related languages, one of which must be French or German. The second language may be French or German, or may be a field language.

Ph.D.—historical musicology track: Intermediate-level reading proficiency is required in two languages, one of which must be German. The second language may be French, Italian, or any other language central to the proposed doctoral research.

## ADMISSIONS

### ADMISSION TO THE DMA AND PH.D. PROGRAMS

Minimum admission requirements of the Graduate School apply to all applicants for graduate study in music. The Mead Witter School of Music has additional requirements. Applicants should have a master's degree in music or equivalent foundational course work as required by each area of study. A cumulative GPA of 3.0 (on a 4.0 scale, calculated on the last 60 credit hours) is necessary for full admission. Admission to the DMA program assumes a high level of performance ability determined by audition. Composition applicants must have completed a master's degree or equivalent in composition. Both the DMA and the Ph.D. programs involve substantial academic work and require excellent reading, writing, and speaking skills. Therefore, all international students are required to submit a TOEFL score. See the Mead Witter School of Music graduate admissions website (<http://www.music.wisc.edu/admissions/graduate>) for information on minimum score requirements. The Mead Witter School of Music does **not** waive the TOEFL score requirement for students who have completed a degree at an American university. All Ph.D. applicants and DMA piano applicants must submit a scholarly paper as part of the application. Ph.D. students are expected to submit Graduate Record Exam (GRE) scores. Typically, performance applicants are required to audition in person. For details on specific audition requirements and additional application materials, visit the Mead Witter School of Music graduate admissions website (<http://www.music.wisc.edu/admissions/graduate>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- articulates research problems, potentials and limits with respect to theory and cultural understanding of music.
- formulates ideas and concepts beyond the current boundaries of knowledge in the field of music study.
- demonstrates breadth within the learning experiences in an area of study outside the principal field of inquiry.
- accomplishes research that makes a substantive contribution to the field.
- creates well-written monographs based upon original research that make substantive contributions to the field.
- communicates complex ideas in a clear and understandable manner, both verbally and in writing.



## PROFESSIONAL CONDUCT

- fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Cook (director), Aley, Bartley, Blasius, Bowles, Calderon, Chisholm, Crook, Davis, Dembski, DiSanza, Dill, Doing, Earp, Fischer, Fulmer, Hyer, Jensen, Johnson, Jutt, Karp, Koza, Leckrone, Perry, Potter, Radano, Rowe, Schaffer, Schwendinger, Smith, Stowe, Swack, B. Taylor, C. Taylor, Thimmig, Vardi; Associate Professors Dobbs, Hetzler, Johnson, Teeple, Vallon; Assistant Professors Grabois, Park Altino, Wallmann

## MUSIC: EDUCATION, M.M.

The mission of the Mead Witter School of Music is:

- to provide a rich, integrated program of undergraduate and graduate education that promotes the highest levels of professional, creative, and scholarly development while challenging students to achieve their greatest potential;
- to cultivate an environment that inspires creativity, stimulates intellectual curiosity, and fosters critical thinking; and
- to serve the university community, the public, and the profession through performance, composition, scholarship, music education, outreach, and engagement.

## DEGREES AND MAJORS

The master of music is offered in music: performance with concentrations in brass; composition; percussion; piano performance; collaborative piano; piano performance and pedagogy; organ; strings; string development; guitar; voice; opera; woodwinds; multiple woodwinds; choral conducting; orchestral conducting; wind conducting.

The master of music is also offered in music: education. This program is suited to those who wish to emphasize music content. Those who wish to explore music education within the context of education at large should consider the curriculum and instruction M.S. program in the School of Education.

The master of arts in music is offered with concentrations in ethnomusicology, music history, and music theory.

A double master's degree with the School of Library and Information Studies is also offered.

The DMA (doctor of musical arts) and the Ph.D. are the highest degrees conferred by the Mead Witter School of Music. The DMA is granted for evidence of general proficiency and distinctive attainment in a specialized field of performance. The student's ability in independent investigation is demonstrated through a series of recitals and in a final project presenting original research or creative scholarship.

The DMA in music: performance is offered with concentrations in: brass; composition; percussion; piano performance; collaborative piano; piano performance and pedagogy; organ; strings (includes guitar); string development; voice; opera; woodwinds; multiple woodwinds; choral conducting; orchestral conducting; wind conducting.

The Ph.D. in music, a research degree, is offered in the areas of ethnomusicology, historical musicology, and music theory.

Master's degrees require a minimum of 30 credits; Ph.D. and DMA degrees require significant work beyond the master's degree, including the extensive independent work described above. Each degree track varies slightly and may impose additional requirements. Contact the Mead Witter School of Music graduate office for complete explanations of the degrees offered at the master's or doctoral levels: [gradadmissions@music.wisc.edu](mailto:gradadmissions@music.wisc.edu). ([gradadmissions@music.wisc.edu](mailto:gradadmissions@music.wisc.edu))

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## FACILITIES

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## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.M.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the coursework (15 out of the minimum 30 total credits) in each program must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the

university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Each track of study (e.g., cello, brass, etc.) has different course requirements. Students must consult with their advisor in their first semester to determine expected course of study.

### OVERALL GRADUATE GPA REQUIREMENT

M.M. students must maintain a cumulative grade point average (GPA) of 3.25

### OTHER GRADE REQUIREMENTS

Students must earn a B or above in all coursework.

### PROBATION POLICY

M.M. students who fail to make satisfactory progress in any of the four following areas: grades, course load, time constraints, or exams, will be notified in writing by the DGS. At the end of the second semester of failing to make satisfactory progress the student is placed on probation effective the next semester. This action suspends financial aid (but does not affect loans or work-study). See details at the Satisfactory Progress for Masters Students (<http://uwsom.wpengin.com/wp-content/uploads/2014/05/MastersSatisfactoryProgress.pdf>).

### ADVISOR / COMMITTEE

M.M. students have two advisors and two committees. One advisor is the DGS the other is their performance instructor or major professor. The two committees are:

1. recital committee
2. exam committee.

For more details see the School of Music Graduate Handbook (<http://www.music.wisc.edu/wp-content/uploads/2014/05/SOM-Graduate-Handbook-Booklet.pdf>).

## ASSESSMENTS AND EXAMINATIONS

M.M. in music education students turn in a final project. All M.M. programs require a comprehensive exam during the final semester.

## TIME CONSTRAINTS

The following time limits apply to master's degrees in the School of Music. Exceptions can be made only upon recommendation of the graduate committee and approval of the DGS (director of graduate studies):

1. All M.M. and M.A. students with university funding (TA, PA, fellowship, etc.) must complete all requirements for the master's degree within four semesters (not counting summer sessions or M.A. thesis credits), or six semesters if the funding appointment is more than 33.33%.
2. Part-time and unfunded M.M. and M.A. students who have not completed the degree in seven years should submit a letter of intent and statement of progress to the DGS (director of graduate studies). The letter should include a statement of intent to complete the degree, factors that have impeded progress, what work they need to complete to finish the degree, as well as how and when they intend to complete the degree.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

### ADMISSION TO THE MASTER OF MUSIC AND MASTER OF ARTS PROGRAMS

Minimum admission requirements of the Graduate School apply to all applicants for graduate study in music. The Mead Witter School of Music has additional requirements. Applicants should have a bachelor's degree in music or equivalent foundational course work as required by each area of study. An undergraduate GPA of 3.0 (on a 4.0 scale, calculated on the last 60 credit hours) is necessary for full admission. M.M. applicants in music education should have an undergraduate degree in music education and at least two years of music teaching experience—interested students are encouraged to contact the music education faculty prior to application. M.A. applicants are required to submit Graduate Record Exam (GRE) scores and samples of research and writing. Both the M.A. and the M.M. programs involve substantial academic work and require excellent reading, writing, and speaking skills. Therefore, all international students are required to submit a TOEFL score. See the Mead Witter School of Music graduate admissions website (<http://www.music.wisc.edu/admissions/graduate>) for information on minimum score requirements. The Mead Witter School of Music does **not** waive the TOEFL score requirement for students who have completed a degree at an American university. Typically, performance applicants are required to audition in person. For details on specific audition requirements and additional application materials, visit the School of Music graduate admissions website (<http://www.music.wisc.edu/admissions/graduate>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- communicates clearly in multiple modes, including written and verbal, a well-developed foundational understanding, scholarly and practically, of the field of music education as it currently exists.
- demonstrates understanding of music education from multiple perspectives, including but not limited to social, cultural, historical and musical perspectives.
- draws upon extensive understandings of music learning and teaching as socially situated and constructed in multiple ways, honoring human difference as a rich source of information and demonstrates this in coursework and final projects.

### PROFESSIONAL CONDUCT

- understands and applies principles of ethical and professional conduct.
- respects colleagues and values contributions of others in both individual and collaborative endeavors.

## PEOPLE

**Faculty:** Professors Cook (director), Aley, Bartley, Blasius, Bowles, Calderon, Chisholm, Crook, Davis, Dembski, DiSanza, Dill, Doing, Earp, Fischer, Fulmer, Hyer, Jensen, Johnson, Jutt, Karp, Koza, Leckrone, Perry, Potter, Radano, Rowe, Schaffer, Schwendinger, Smith, Stowe, Swack, B. Taylor, C. Taylor, Thimmig, Vardi; Associate Professors Dobbs, Hetzler, Johnson, Teeple, Vallon; Assistant Professors Grabois, Park Altino, Wallmann

## MUSIC: PERFORMANCE, DMA

The mission of the Wead Mitter School of Music is:

- to provide a rich, integrated program of undergraduate and graduate education that promotes the highest levels of professional, creative, and scholarly development while challenging students to achieve their greatest potential;
- to cultivate an environment that inspires creativity, stimulates intellectual curiosity, and fosters critical thinking; and
- to serve the university community, the public, and the profession through performance, composition, scholarship, music education, outreach, and engagement.

## DEGREES AND MAJORS

The master of music is offered in music: performance with concentrations in brass; composition; percussion; piano performance; collaborative piano; piano performance and pedagogy; organ; strings; string development; guitar; voice; opera; woodwinds; multiple woodwinds; choral conducting; orchestral conducting; wind conducting.

The master of music is also offered in music: education. This degree is appropriate for those who wish to emphasize music content. Those who wish to explore music education within the context of education at large should consider the curriculum and instruction M.S. program in the School of Education.

The master of arts in music is offered with concentrations in ethnomusicology, music history, and music theory.

A double master's degree with the School of Library and Information Studies is also offered.

The DMA (doctor of musical arts) and the Ph.D. are the highest degrees conferred by the Mead Witter School of Music. The DMA is granted for evidence of general proficiency and distinctive attainment in a specialized field of performance. The student's ability in independent investigation is demonstrated through a series of recitals and in a final project presenting original research or creative scholarship.

The DMA in music: performance is offered with concentrations in: brass; composition; percussion; piano performance; collaborative piano; piano performance and pedagogy; organ; strings (includes guitar); string development; voice; opera; woodwinds; multiple woodwinds; choral conducting; orchestral conducting; wind conducting.

The Ph.D. in music, a research degree, is offered in the areas of ethnomusicology, historical musicology, and music theory.

Master's degrees require a minimum of 30 credits; Ph.D. and DMA degrees require significant work beyond the master's degree, including the extensive independent work described above. Each degree track varies slightly and may impose additional requirements. Contact the Mead Witter School of Music graduate office for complete explanations of the degrees offered at the master's or doctoral levels: [gradadmissions@music.wisc.edu](mailto:gradadmissions@music.wisc.edu)

## FUNDING

Through the generosity of Paul J. Collins, the Mead Witter School of Music is the recipient of a substantial fellowship fund which, in combination with the Graduate School and University Foundation, allows the school to offer multiple-year funding to the highest quality graduate students in performance. The Collins fellowships, along with The Lorna Wendt and Anonymous Fund Fellowships for Choral and Voice students are offered as Wisconsin Distinguished Fellowships and provide full tuition and fees, a generous stipend, additional funds, and comprehensive health care. Nomination by a performance faculty member—usually following an on-site audition—is required for consideration.

The Mead Witter School of Music also offers teaching and project assistantships in music history, music theory, piano, conducting, voice, and other performance areas. These positions offer tuition remission plus a salary and health care benefits. In addition, the Mead Witter School of Music selects qualified applicants for the Chancellor's Fellowship, University Fellowship, and Advanced Opportunity Fellowship. The UW–Madison Office of Student Financial Services assists students in obtaining general grants and loans. All Mead Witter School of Music students who receive funding are required to enroll full-time with 8–12 graduate credits.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

DMA, with tracks in brass, choral conducting, collaborative piano, composition, orchestral conducting, organ, percussion, piano, piano pedagogy, strings, vocal performance, wind conducting, and woodwinds

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

- Brass track: 76 credits
- Choral Conducting track: 74 credits
- Collaborative Piano track: 74 credits
- Composition track: 80 credits
- Orchestral Conducting track: 66 credits
- Organ track: 82 credits
- Percussion track: 74 credits
- Piano Performance track: 74 credits
- Piano Performance and Pedagogy track: 79 credits
- Strings (includes Guitar) track: 73 credits
- Vocal Performance track: 82
- Wind Conducting track: 69 credits
- Woodwinds track: 72 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to up to 30 credits of graduate coursework from other institutions in the form of a master's degree or the equivalent. coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW–Madison

Special student. Coursework earned five or more years prior to admission to a Master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Each track of study (e.g., cello, cello, brass, etc.) has different course requirements. Students must consult with their advisor in their first semester to determine expected course of study.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor consisting of at least 9 credits (most are 12 credits).

## OVERALL GRADUATE GPA REQUIREMENT

Students must maintain a cumulative grade point average (GPA) of 3.25.

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all coursework.

## PROBATION POLICY

DMA Students who fail to make satisfactory progress in any of the following four areas: Grades, Course Load, Time Constraints, or Exams will be notified in writing by the DGS. At the end of the second semester of failing to make satisfactory progress the student is placed on Probation effective the next semester. This action suspends financial aid (but does not affect loans or work-study). See details in the Satisfactory Progress for Doctoral Students (<http://uwsom.wengine.com/wp-content/uploads/2014/05/DoctoralSatisfactoryProgressDocument.pdf>).

## ADVISOR / COMMITTEE

DMA students have two advisors and two committees. One advisor is the DGS the other is their performance instructor. The two committees are:

1. doctoral performance and research committee
2. a preliminary exam committee.

For more details see the School of Music Graduate Handbook (<http://www.music.wisc.edu/wp-content/uploads/2014/05/SOM-Graduate-Handbook-Booklet.pdf>).

## ASSESSMENTS AND EXAMINATIONS

All DMA programs require five to six recitals at 1 credit each and require preliminary written and oral exams after all coursework (apart from dissertation/project credit) is completed.

## TIME CONSTRAINTS

DMA and Ph.D. students in the School of Music are allowed a maximum of four calendar years from the date of enrollment in the program to complete all coursework requirements and successfully pass preliminary examinations. A student not completing the course requirements (apart from the dissertation or project requirements) by the end of the fourth year will be placed on probation for the following 12 months. During this period, the student will not be eligible for financial aid. A student who fails to complete the coursework requirements and pass preliminary examinations during the 12-month probation period may be withdrawn from the program. The Doctoral Research Project Committee (DPRC) or Ph.D. dissertation Committee may grant up to a one semester extension to the above guidelines. Exceptions beyond that can be made only upon

recommendation of the graduate committee and approval of the DGS (director of graduate studies).

## LANGUAGE REQUIREMENTS

DMA: all tracks require intermediate-level reading proficiency in one foreign language, usually French or German. DMA in voice performance requires proficiency in German, French and Italian. See individual programs for details.

## ADMISSIONS

Minimum admission requirements of the Graduate School apply to all applicants for graduate study in music. The Mead Witter School of Music has additional requirements. Applicants should have a master's degree in music or equivalent foundational course work as required by each area of study. A cumulative GPA of 3.0 (on a 4.0 scale, calculated on the last 60 credit hours) is necessary for full admission. Admission to the DMA program assumes a high level of performance ability determined by audition. Composition applicants must have completed a master's degree or equivalent in composition. Both the DMA and the Ph.D. programs involve substantial academic work and require excellent reading, writing, and speaking skills. Therefore, all international students are required to submit a TOEFL score. See the Mead Witter School of Music graduate admissions website (<http://www.music.wisc.edu/admissions/graduate>) for information on minimum score requirements. The Mead Witter School of Music does **not** waive the TOEFL score requirement for students who have completed a degree at an American university. All Ph.D. applicants and DMA piano applicants must submit a scholarly paper as part of the application. Ph.D. students are expected to submit Graduate Record Exam (GRE) scores. Typically, performance applicants are required to audition in person. For details on specific audition requirements and additional application materials, visit the Mead Witter School of Music graduate admissions website (<http://www.music.wisc.edu/admissions/graduate>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- produces public performances of cohesive programs of music in which original ideas are communicated clearly and energetically.
- creates compositions and/or performances that clearly reflect well-developed original musical ideas.
- applies deep knowledge of technique, style, and cultural contexts to performance or creation of music.
- effectively expresses ideas both verbally and in writing so as to foster understanding among colleagues.
- demonstrates breadth within learning experience in an area of study outside the principal field of performance or composition.

### PROFESSIONAL CONDUCT

- fosters ethical and professional conduct both in individual creative work and in collaborative endeavors.

## PEOPLE

**Faculty:** Professors Cook (director), Aley, Bartley, Blasius, Bowles, Calderon, Chisholm, Crook, Davis, Dembski, DiSanza, Dill, Doing, Earp, Fischer, Fulmer, Hyer, Jensen, Johnson, Jutt, Karp, Koza, Leckrone, Perry,

Potter, Radano, Rowe, Schaffer, Schwendinger, Smith, Stowe, Swack, B. Taylor, C. Taylor, Thimmig, Vardi; Associate Professors Dobbs, Hetzler, Johnson, Teeple, Vallon; Assistant Professors Grabois, Park Altino, Wallmann

## MUSIC: PERFORMANCE, M.M.

The mission of the Mead Witter School of Music is:

- to provide a rich, integrated program of undergraduate and graduate education that promotes the highest levels of professional, creative, and scholarly development while challenging students to achieve their greatest potential;
- to cultivate an environment that inspires creativity, stimulates intellectual curiosity, and fosters critical thinking; and
- to serve the university community, the public, and the profession through performance, composition, scholarship, music education, outreach, and engagement.

## DEGREES AND MAJORS

The master of music is offered in music: performance with concentrations in brass; composition; percussion; piano performance; collaborative piano; piano performance and pedagogy; organ; strings; string development; guitar; voice; opera; woodwinds; multiple woodwinds; choral conducting; orchestral conducting; wind conducting.

The master of music is also offered in music: education. This degree is appropriate for those who wish to emphasize music content. Those who wish to explore music education within the context of education at large should consider the curriculum and instruction M.S. program in the School of Education.

The master of arts in music is offered with concentrations in ethnomusicology, music history, and music theory.

A double master's degree with the School of Library and Information Studies is also offered.

The DMA (doctor of musical arts) and the Ph.D. are the highest degrees conferred by the Mead Witter School of Music. The DMA is granted for evidence of general proficiency and distinctive attainment in a specialized field of performance. The student's ability in independent investigation is demonstrated through a series of recitals and in a final project presenting original research or creative scholarship.

The DMA in music: performance is offered with concentrations in: brass; composition; percussion; piano performance; collaborative piano; piano performance and pedagogy; organ; strings (includes guitar); string development; voice; opera; woodwinds; multiple woodwinds; choral conducting; orchestral conducting; wind conducting.

The Ph.D. in music, a research degree, is offered in the areas of ethnomusicology, historical musicology, and music theory.

Master's degrees require a minimum of 30 credits; Ph.D. and DMA degrees require significant work beyond the master's degree, including the extensive independent work described above. Each degree track varies slightly and may impose additional requirements. Contact the Mead Witter School of Music graduate office for complete explanations of the degrees offered at the master's or doctoral levels: [gradadmissions@music.wisc.edu](mailto:gradadmissions@music.wisc.edu)

## FUNDING

Through the generosity of Paul J. Collins, the Mead Witter School of Music is the recipient of a substantial fellowship fund which, in combination with the Graduate School and University Foundation, allows the school to offer multiple-year funding to the highest quality graduate students in performance. The Collins fellowships, along with The Lorna Wendt and Anonymous Fund Fellowships for Choral and Voice students are offered as Wisconsin Distinguished Fellowships and provide full tuition and fees, a generous stipend, additional funds, and comprehensive health care. Nomination by a performance faculty member—usually following an on-site audition—is required for consideration.

The Mead Witter School of Music also offers teaching and project assistantships in music history, music theory, piano, conducting, voice, and other performance areas. These positions offer tuition remission plus a salary and health care benefits. In addition, the Mead Witter School of Music selects qualified applicants for the Chancellor's Fellowship, University Fellowship, and Advanced Opportunity Fellowship. The UW–Madison Office of Student Financial Services assists students in obtaining general grants and loans. All Mead Witter School of Music students who receive funding are required to enroll full-time with 8–12 graduate credits.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.M., with tracks in brass, choral conducting, collaborative piano, composition, guitar, multiple woodwinds, opera, orchestral conducting, organ, percussion, piano, piano pedagogy, string development, strings, vocal performance, wind conducting, and woodwinds

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

- Brass track: 30 credits
- Choral Conducting track: 32 credits
- Collaborative Piano track: 32 credits
- Composition track: 30 credits
- Guitar track: 30 credits
- Multiple Woodwinds track: 33 credits
- Music Education track: 31 credits
- Opera track: 30 credits
- Orchestral Conducting track: 30 credits
- Organ track: 33 credits
- Percussion track: 31 credits
- Piano Performance track: 32 credits
- Piano Performance and Pedagogy track: 34 credits
- String Development track: 31 credits
- String Performance track: 33 credits
- Vocal Performance track: 32 credits

- Wind Conducting track: 30 credits
- Woodwinds track: 30 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the coursework (15 out of the minimum 30 total credits) in each program must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Each track of study (e.g., cello, brass, etc.) has different course requirements. Students must consult with their advisor in their first semester to determine expected course of study.

## OVERALL GRADUATE GPA REQUIREMENT

Students must maintain a cumulative grade point average (GPA) of 3.25

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all coursework.

## PROBATION POLICY

M.M. students who fail to make satisfactory progress in any of the four following areas: grades, course load, time constraints, or exams, will be notified in writing by the DGS. At the end of the second semester of failing to make satisfactory progress the student is placed on probation effective the next semester. This action suspends financial aid (but does not affect loans or work-study). See details in the Satisfactory Progress for Master's Students (<http://uwsom.wpengine.com/wp-content/uploads/2014/05/MastersSatisfactoryProgress.pdf>).

## ADVISOR / COMMITTEE

M.M. students have two advisors and two committees. One advisor is the DGS the other is their performance instructor or major professor. The two committees are:

1. recital committee
2. exam committee.

For more details see the School of Music Graduate Handbook (<http://www.music.wisc.edu/wp-content/uploads/2014/05/SOM-Graduate-Handbook-Booklet.pdf>).

## ASSESSMENTS AND EXAMINATIONS

All M.M. programs (except M.M. in music education, M.M. in string development, and M.M. in composition) have a 4-credit recital requirement. M.M. students in composition turn in a thesis/project (composition). M.M. students in string development turn in a final project. All M.M. programs require a comprehensive exam during the final semester.

## TIME CONSTRAINTS

The following time limits apply to the master's degrees in the School of Music. Exceptions to the following can be made only upon recommendation of the graduate committee and approval of the DGS (director of graduate studies):

1. All M.M. and M.A. students with university funding (TA, PA, fellowship, etc.) must complete all requirements for the master's degree within four semesters (not counting summer sessions or M.A. thesis credits), or six semesters if the funding appointment is more than 33.33%.
2. Part-time and unfunded M.M. and M.A. students who have not completed the degree in seven years should submit a letter of intent and statement of progress to the DGS (director of graduate studies). The letter should include a statement of intent to complete the degree, factors that have impeded progress, what work they need to complete to finish the degree, as well as how and when they intend to complete the degree.

## LANGUAGE REQUIREMENTS

M.M. voice track and M.M. opera track students must complete the equivalent of, or demonstrate proficiency equivalent to, one college-level **year** each of French, Italian, and German language study.

M.M. (all other tracks): no language requirements.

## ADMISSIONS

Minimum admission requirements of the Graduate School apply to all applicants for graduate study in music. The Mead Witter School of Music has additional requirements. Applicants should have a bachelor's degree in music or equivalent foundational course work as required by each area of study. An undergraduate GPA of 3.0 (on a 4.0 scale, calculated on the last 60 credit hours) is necessary for full admission. M.M. applicants in music education should have an undergraduate degree in music education and at least two years of music teaching experience—interested students are encouraged to contact the music education faculty prior to application. M.A. applicants are required to submit Graduate Record Exam (GRE) scores and samples of research and writing. Both the M.A. and the M.M. programs involve substantial academic work and require excellent reading, writing, and speaking skills.

Therefore, all international students are required to submit a TOEFL score. See the Mead Witter School of Music graduate admissions website (<http://www.music.wisc.edu/admissions/graduate>) for information on minimum score requirements. The Mead Witter School of Music does **not** waive the TOEFL score requirement for students who have completed a degree at an American university. Typically, performance applicants are required to audition in person. For details on specific audition requirements and additional application materials, visit the School of Music graduate admissions website (<http://www.music.wisc.edu/admissions/graduate>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- communicates well-developed musical ideas clearly and energetically in performance and, where applicable, in compositions.
- demonstrates knowledge of appropriate stylistic details in performance of music from a variety of historical periods and cultural origins.
- draws upon extensive understanding of a variety of musical cultures and historical periods for the preparation of a performance or a composition.
- selects the most appropriate methods of technique or notation to achieve the intended result in performance.
- shows ability to express, verbally and in writing, musical ideas and interpretive conclusions to peers and colleagues.

### PROFESSIONAL CONDUCT

- recognizes and applies principles of ethical and professional conduct.
- respects colleagues and values contributions of others in collaborative endeavors.

## PEOPLE

**Faculty:** Professors Cook (director), Aley, Bartley, Blasius, Bowles, Calderon, Chisholm, Crook, Davis, Dembski, DiSanza, Dill, Doing, Earp, Fischer, Fulmer, Hyer, Jensen, Johnson, Jutt, Karp, Koza, Leckrone, Perry, Potter, Radano, Rowe, Schaffer, Schwendinger, Smith, Stowe, Swack, B. Taylor, C. Taylor, Thimmig, Vardi; Associate Professors Dobbs, Hetzler, Johnson, Teeple, Vallon; Assistant Professors Grabois, Park Altino, Wallmann



# MECHANICAL ENGINEERING

**Administrative Unit:** Mechanical Engineering

**College/School:** College of Engineering

**Admitting Plans:** M.Eng., M.S., Ph.D.

**Degrees Offered:** M.S., M.Eng., Ph.D.

**Minors and Certificates:** Doctoral Minor

**Named Options:** Automotive Engineering (M.S.); Controls (M.S.); Polymer Science (M.Eng.)

The department offers a master of science (M.S.) and doctor of philosophy (Ph.D.) in mechanical engineering. The graduate programs are designed to train outstanding students for advanced work in industry and research and development through a combination of coursework and hands on research. Online programs in the department include an M.S. with named option in controls and a master of engineering (M.Eng.) with named option in polymer science.

The Department of Mechanical Engineering has a long history of excellence in graduate education. The department is consistently ranked in the top 20 in the United States for graduate programs in mechanical engineering. The department offers research opportunities in a large number of established and emerging research specializations. Broad research themes within the department include: biomechanics, computational engineering, energy, manufacturing, and mechanics and controls. Excellent research facilities are available for specialized research within these broad areas for studies in: biomechanics, combustion, computational design, controls, cryogenics, dynamics and vibrations, fluid dynamics, fluid power, geometric modeling and prototyping, heat and mass transfer, internal combustion engines, laser diagnostics, manufacturing processes, mechanics, mechatronics, polymer and composites processing, powertrain control, robotics, solar energy, and more.

A list of mechanical engineering faculty and their respective areas of specialization is available on the department's website (<http://directory.engr.wisc.edu/me/faculty>).

The mechanical engineering graduate student handbook is also available on the program website (<https://www.engr.wisc.edu/app/uploads/2016/09/ME-Grad-handbook-Update-September-2016.pdf>).

## ONLINE PROGRAMS

The mechanical engineering M.Eng. named option: polymer science is a fully online degree that includes an interdisciplinary curriculum of courses incorporating the latest research and practices in plastics and polymer manufacturing. It is designed to prepare engineers for professional practice in the polymer industry. Please visit the Department of Engineering Professional Development's website (<https://epd.wisc.edu/online-degree/master-of-engineering-polymer-science>) for complete information about the online polymer science program.

The mechanical engineering M.S. named option: controls is a primarily online degree that includes a full curriculum of courses incorporating the latest research and practices in drive, converter control, and sensor integration. This program consists of 27 online credits and 3 credits taken on campus through a summer laboratory course. The program includes courses in both mechanical engineering and electrical engineering and is designed for practicing engineers. Please visit the Department of Engineering Professional Development's website (<http://>

[epd.wisc.edu/online-degree/mechanical-engineering-controls](http://epd.wisc.edu/online-degree/mechanical-engineering-controls)) for complete information about the online controls program.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Mechanical Engineering, Doctoral Minor (p. 529)
- Mechanical Engineering, M.Eng. (p. 529)
- Mechanical Engineering, M.S. (p. 531)
- Mechanical Engineering, Ph.D. (p. 533)

## PEOPLE

**Faculty:** Professors Engelstad, Gandhi (chair), Lorenz, Moskwa, Nellis, Osswald, Pfothenauer, Rowlands, Rutland, Sanders, Shapiro, Thelen, Turng; Associate Professors Krupenkin, Negrut, Pfefferkorn, Ploeg, Qian, Rothamer, Shedd, Suresh, Trujillo, Zinn; Assistant Professors Adamczyk, Eriten, Henak, Kokjohn, Miller, Min, Roldan-Alzate, Rudolph; Faculty affiliates Allen, Bonazza, Clemons, Corradini, Holloway, Kammer, Luzzio, Reindl, Scarlet, Schauer, Smith

## MECHANICAL ENGINEERING, DOCTORAL MINOR

### REQUIREMENTS

Ph.D. candidates from other departments who wish to minor in mechanical engineering are required to complete a minimum of 9 formal credits of mechanical engineering courses numbered 400 or above with grades of B or better (grades of BC and below are not accepted for the minor). One of these formal courses must be at the 700 level or above.

## PEOPLE

**Faculty:** Professors Engelstad, Gandhi (chair), Lorenz, Moskwa, Nellis, Osswald, Pfothenauer, Rowlands, Rutland, Sanders, Shapiro, Thelen, Turng; Associate Professors Krupenkin, Negrut, Pfefferkorn, Ploeg, Qian, Rothamer, Shedd, Suresh, Trujillo, Zinn; Assistant Professors Adamczyk, Eriten, Henak, Kokjohn, Miller, Min, Roldan-Alzate, Rudolph; Faculty affiliates Allen, Bonazza, Clemons, Corradini, Holloway, Kammer, Luzzio, Reindl, Scarlet, Schauer, Smith

## MECHANICAL ENGINEERING, M.ENG.

The department offers a master of science (M.S.) and doctor of philosophy (Ph.D.) in mechanical engineering. The graduate programs are designed to train outstanding students for advanced work in industry and research and development through a combination of coursework and hands on research. Online programs in the department include an M.S. with named option in controls and a master of engineering (M.Eng.) with named option in polymer science.

The Department of Mechanical Engineering has a long history of excellence in graduate education. The department is consistently ranked in the top 20 in the United States for graduate programs in mechanical engineering. The department offers research opportunities in a large number of established and emerging research specializations. Broad research themes within the department include: biomechanics, computational engineering, energy, manufacturing, and mechanics and controls. Excellent research facilities are available for specialized research within these broad areas for studies in: biomechanics, combustion, computational design, controls, cryogenics, dynamics and vibrations, fluid dynamics, fluid power, geometric modeling and prototyping, heat and mass transfer, internal combustion engines, laser diagnostics, manufacturing processes, mechanics, mechatronics, polymer and composites processing, powertrain control, robotics, solar energy, and more.

A list of mechanical engineering faculty and their respective areas of specialization is available on the department's website (<http://directory.engr.wisc.edu/me/faculty>).

The mechanical engineering graduate student handbook is also available on the program website (<https://www.engr.wisc.edu/app/uploads/2016/09/ME-Grad-handbook-Update-September-2016.pdf>).

## ONLINE PROGRAMS

The mechanical engineering M.Eng. named option: polymer science is a fully online degree that includes an interdisciplinary curriculum of courses incorporating the latest research and practices in plastics and polymer manufacturing. It is designed to prepare engineers for professional practice in the polymer industry. Please visit the Department of Engineering Professional Development's website (<https://epd.wisc.edu/online-degree/master-of-engineering-polymer-science>) for complete information about the online polymer science program.

The mechanical engineering M.S. named option: controls is a primarily online degree that includes a full curriculum of courses incorporating the latest research and practices in drive, converter control, and sensor integration. This program consists of 27 online credits and 3 credits taken on campus through a summer laboratory course. The program includes courses in both mechanical engineering and electrical engineering and is designed for practicing engineers. Please visit the Department of Engineering Professional Development's website (<http://epd.wisc.edu/online-degree/mechanical-engineering-controls>) for complete information about the online controls program.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available named option in Controls

M.Eng., with available named option in Polymer Science

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

M.S. 18 credits, M. Eng. 16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.S. With program approval, students are allowed to count graduate coursework from other institutions (up to 50% of the formal course requirement) toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M. Eng.: no transfer credits are allowed.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

M.S.: Up to 7 credits numbered 400 or above may be counted toward the minimum graduate degree credit requirement. These credits may be counted toward the minimum graduate coursework (50%) requirement if they are in courses numbered 700 or above. No credits may be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.Eng.: With advisor approval, students are allowed to count no more than 7 credits of graduate level coursework from their undergraduate career at UW–Madison. These credits may be counted toward the minimum graduate coursework (50%) requirement if they are in courses numbered 700 or above. No credits can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student toward the minimum graduate residence credit requirement and the minimum graduate degree credit requirement. These credits may be counted toward the minimum graduate coursework (50%) requirement if they are in courses numbered 700 or above. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

M.S.: Two semesters of M E 903 Graduate Seminar are required. These should be taken the first two semester the student is in residence.

M. Eng. – named option Polymer Science: See program-specific information on the program website (<https://epd.wisc.edu/online-degree/master-of-engineering-polymer-science/#/about>).

## OVERALL GRADUATE GPA REQUIREMENT

M.S. 3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Students must earn a C or above in all formal coursework.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal from program, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to obtain a mechanical engineering faculty advisor who assists them in planning a course sequence that meets degrees requirements and who will discuss career objectives with the students.

An M.S. thesis committee must include student's mechanical engineering faculty advisor and at least two other faculty members.

## ASSESSMENTS AND EXAMINATIONS

The thesis track requires that the student pass a formal thesis defense.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

Language Requirements

No language requirements

## ADMISSIONS

Students with a strong background in mechanical engineering or a related field with interest in furthering their education in mechanical engineering are encouraged to apply for admission to the department. Applicants accepted into the program generally have an undergraduate grade point average well above the graduate school minimum of 3.0 on a 4.0 scale. All applicants are required to take the Graduate Record Exam (GRE). Applications are evaluated on the basis of previous academic record, GRE scores, letters of recommendation, and a personal statement.

For more information on admission requirements see the department website (<https://www.engr.wisc.edu/admissions/graduate-admissions>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

### PROFESSIONAL CONDUCT

- recognize and apply principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Engelstad, Gandhi (chair), Lorenz, Moskwa, Nellis, Osswald, Pfothenhauer, Rowlands, Rutland, Sanders, Shapiro, Thelen, Turng; Associate Professors Krupenkin, Negrut, Pfefferkorn, Ploeg, Qian, Rothamer, Shedd, Suresh, Trujillo, Zinn; Assistant Professors Adamczyk, Eriten, Henak, Kokjohn, Miller, Min, Roldan-Alzate, Rudolph; Faculty affiliates Allen, Bonazza, Clemons, Corradini, Holloway, Kammer, Luzzio, Reindl, Scarlet, Schauer, Smith

## MECHANICAL ENGINEERING, M.S.

The department offers a master of science (M.S.) and doctor of philosophy (Ph.D.) in mechanical engineering. The graduate programs are designed to train outstanding students for advanced work in industry and research and development through a combination of coursework and hands on research. Online programs in the department include an M.S. with named option in controls and a master of engineering (M.Eng.) with named option in polymer science.

The Department of Mechanical Engineering has a long history of excellence in graduate education. The department is consistently ranked in the top 20 in the United States for graduate programs in mechanical engineering. The department offers research opportunities in a large number of established and emerging research specializations. Broad research themes within the department include: biomechanics, computational engineering, energy, manufacturing, and mechanics and controls. Excellent research facilities are available for specialized research within these broad areas for studies in: biomechanics, combustion, computational design, controls, cryogenics, dynamics and vibrations, fluid dynamics, fluid power, geometric modeling and prototyping, heat and mass transfer, internal combustion engines, laser diagnostics, manufacturing processes, mechanics, mechatronics, polymer and composites processing, powertrain control, robotics, solar energy, and more.

A list of mechanical engineering faculty and their respective areas of specialization is available on the department's website (<http://directory.engr.wisc.edu/me/faculty>).

The mechanical engineering graduate student handbook is also available on the program website (<https://www.engr.wisc.edu/app/uploads/2016/09/ME-Grad-handbook-Update-September-2016.pdf>).

## ONLINE PROGRAMS

The mechanical engineering M.Eng. named option: polymer science is a fully online degree that includes an interdisciplinary curriculum of courses incorporating the latest research and practices in plastics and polymer manufacturing. It is designed to prepare engineers for professional practice in the polymer industry. Please visit the Department of Engineering Professional Development's website (<https://epd.wisc.edu/online-degree/master-of-engineering-polymer-science>) for complete information about the online polymer science program.

The mechanical engineering M.S. named option: controls is a primarily online degree that includes a full curriculum of courses incorporating the latest research and practices in drive, converter control, and sensor integration. This program consists of 27 online credits and 3 credits taken on campus through a summer laboratory course. The program includes courses in both mechanical engineering and electrical engineering and is designed for practicing engineers. Please visit the Department of Engineering Professional Development's website (<http://epd.wisc.edu/online-degree/mechanical-engineering-controls>) for complete information about the online controls program.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.S., with available named option in Controls

M.Eng., with available named option in Polymer Science

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

M.S. 18 credits, M. Eng. 16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.S. With program approval, students are allowed to count graduate coursework from other institutions (up to 50% of the formal course requirement) toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate

residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M. Eng.: no transfer credits are allowed.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

M.S.: Up to 7 credits numbered 400 or above may be counted toward the minimum graduate degree credit requirement. These credits may be counted toward the minimum graduate coursework (50%) requirement if they are in courses numbered 700 or above. No credits may be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.Eng.: With advisor approval, students are allowed to count no more than 7 credits of graduate level coursework from their undergraduate career at UW–Madison. These credits may be counted toward the minimum graduate coursework (50%) requirement if they are in courses numbered 700 or above. No credits can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student toward the minimum graduate residence credit requirement and the minimum graduate degree credit requirement. These credits may be counted toward the minimum graduate coursework (50%) requirement if they are in courses numbered 700 or above. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

M.S.: Two semesters of M E 903 Graduate Seminar are required. These should be taken the first two semester the student is in residence.

M. Eng. – named option Polymer Science: See program-specific information on the program website (<https://epd.wisc.edu/online-degree/master-of-engineering-polymer-science/#/about>).

#### OVERALL GRADUATE GPA REQUIREMENT

M.S. 3.00 GPA required.

#### OTHER GRADE REQUIREMENTS

Students must earn a C or above in all formal coursework.

#### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).

3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal from program, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to obtain a mechanical engineering faculty advisor who assists them in planning a course sequence that meets degrees requirements and who will discuss career objectives with the students.

An M.S. thesis committee must include student's mechanical engineering faculty advisor and at least two other faculty members.

## ASSESSMENTS AND EXAMINATIONS

The thesis track requires that the student pass a formal thesis defense.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

Language Requirements

No language requirements

## ADMISSIONS

Students with a strong background in mechanical engineering or a related field with interest in furthering their education in mechanical engineering are encouraged to apply for admission to the department. Applicants accepted into the program generally have an undergraduate grade point average well above the graduate school minimum of 3.0 on a 4.0 scale. All applicants are required to take the Graduate Record Exam (GRE). Applications are evaluated on the basis of previous academic record, GRE scores, letters of recommendation, and a personal statement. For more information on admission requirements see the department website (<https://www.engr.wisc.edu/admissions/graduate-admissions>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
- demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
- demonstrate creative, independent problem solving skills.
- apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.

### PROFESSIONAL CONDUCT

- recognize and apply principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Engelstad, Gandhi (chair), Lorenz, Moskwa, Nellis, Osswald, Pfothenauer, Rowlands, Rutland, Sanders, Shapiro, Thelen, Turng; Associate Professors Krupenkin, Negrut, Pfefferkorn, Ploeg, Qian,

Rothamer, Shedd, Suresh, Trujillo, Zinn; Assistant Professors Adamczyk, Eriten, Henak, Kokjohn, Miller, Min, Roldan-Alzate, Rudolph; Faculty affiliates Allen, Bonazza, Clemons, Corradini, Holloway, Kammer, Luzzio, Reindl, Scarlet, Schauer, Smith

## MECHANICAL ENGINEERING, PH.D.

The department offers a master of science (M.S.) and doctor of philosophy (Ph.D.) in mechanical engineering. The graduate programs are designed to train outstanding students for advanced work in industry and research and development through a combination of coursework and hands on research. Online programs in the department include an M.S. with named option in controls and a master of engineering (M.Eng.) with named option in polymer science.

The Department of Mechanical Engineering has a long history of excellence in graduate education. The department is consistently ranked in the top 20 in the United States for graduate programs in mechanical engineering. The department offers research opportunities in a large number of established and emerging research specializations. Broad research themes within the department include: biomechanics, computational engineering, energy, manufacturing, and mechanics and controls. Excellent research facilities are available for specialized research within these broad areas for studies in: biomechanics, combustion, computational design, controls, cryogenics, dynamics and vibrations, fluid dynamics, fluid power, geometric modeling and prototyping, heat and mass transfer, internal combustion engines, laser diagnostics, manufacturing processes, mechanics, mechatronics, polymer and composites processing, powertrain control, robotics, solar energy, and more.

A list of mechanical engineering faculty and their respective areas of specialization is available on the department's website (<http://directory.engr.wisc.edu/me/faculty>).

The mechanical engineering graduate student handbook is also available on the program website (<https://www.engr.wisc.edu/app/uploads/2016/09/ME-Grad-handbook-Update-September-2016.pdf>).

## ONLINE PROGRAMS

The mechanical engineering M.Eng. named option: polymer science is a fully online degree that includes an interdisciplinary curriculum of courses incorporating the latest research and practices in plastics and polymer manufacturing. It is designed to prepare engineers for professional practice in the polymer industry. Please visit the Department of Engineering Professional Development's website (<https://epd.wisc.edu/online-degree/master-of-engineering-polymer-science>) for complete information about the online polymer science program.

The mechanical engineering M.S. named option: controls is a primarily online degree that includes a full curriculum of courses incorporating the latest research and practices in drive, converter control, and sensor integration. This program consists of 27 online credits and 3 credits taken on campus through a summer laboratory course. The program includes courses in both mechanical engineering and electrical engineering and is designed for practicing engineers. Please visit the Department of Engineering Professional Development's website (<http://epd.wisc.edu/online-degree/mechanical-engineering-controls>) for complete information about the online controls program.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT:

60 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (31 credits out of 62 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count graduate coursework from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Up to 7 credits numbered 300 or above can be counted toward the minimum graduate degree credit requirement. These credits may be counted toward the minimum graduate coursework (50%) requirement if they are in courses numbered 700 or above. No credits can be counted toward the minimum graduate residence credit requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count up to 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student toward the minimum graduate residence credit requirement and the minimum graduate degree credit requirement. These credits may be counted toward the minimum graduate coursework (50%) requirement if

they are in courses numbered 700 or above. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

Ph.D.: 15 credits

Ph.D. dissertator status: 3 credits of M E 990 Dissertator Research and Thesis

### PROGRAM-SPECIFIC COURSES REQUIRED

Two semesters of M E 903 Graduate Seminar are required. These should be taken the first two semester the student is in residence. If an M.S. degree is received at UW–Madison, additional M E 903 credits are not required.

At least 18 credits of thesis (M E 790 Master's Research and Thesis, M E 890 PhD Research and Thesis, M E 990 Dissertator Research and Thesis) are required with an overall grade of S.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Minor required.

Minor Option A: Requirements for external minor are defined by the department of that minor. Selection of this option requires the approval of the minor department.

Minor Option B (distributed) requires a minimum of 12 formal course credits of graduate-level courses. The coursework should form a coherent group of courses for which the graduate credit is allowed. The approval of the advisor and the graduate committee are required.

### OVERALL GRADUATE GPA REQUIREMENT

3.25 GPA required.

### OTHER GRADE REQUIREMENTS

Students must earn a C or above in all formal coursework. PhD candidates may not have any more than two Incompletes on their record at any one time.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal from program, leave of absence or change of advisor or program).

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time), this will be deemed unsatisfactory progress and the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

### ADVISOR / COMMITTEE

All students must have a mechanical engineering faculty advisor who assists them in planning a course sequence that meets degree

requirements and who will discuss career objectives with the student. A preliminary committee must include student's mechanical engineering faculty advisor and at least three other faculty members. A final oral defense committee must include student's mechanical engineering faculty advisor and at least four other faculty members, one of whom must be from outside of the mechanical engineering department.

## ASSESSMENTS AND EXAMINATIONS

All Ph.D. applicants must take the Ph.D. qualifying exam no later than the second semester after completing their master degree. The Ph.D. candidate will need to pass a qualifying exam, preliminary exam, and a final defense in order to obtain a degree.

## TIME CONSTRAINTS

Ph.D. students must complete their preliminary exam within five years of passing their qualifying exam.

The preliminary must be passed at least 9 months prior to the thesis defense.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Students with a strong background in mechanical engineering or a related field with interest in furthering their education in mechanical engineering are encouraged to apply for admission to the department. Applicants accepted into the program generally have an undergraduate grade point average well above the graduate school minimum of 3.0 on a 4.0 scale. All applicants are required to take the Graduate Record Exam (GRE). Applications are evaluated on the basis of previous academic record, GRE scores, letters of recommendation, and a personal statement. For more information on admission requirements see the department website (<https://www.engr.wisc.edu/department/mechanical-engineering/academics/phd-in-mechanical-engineering>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- demonstrate an ability to synthesize knowledge from a subset of the biological, physical, and social sciences to help frame problems critical to the future of their discipline.
- conduct original research.
- demonstrate an ability to create new knowledge and communicate it to their peers.

### PROFESSIONAL CONDUCT

- fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Engelstad, Ghandhi (chair), Lorenz, Moskwa, Nellis, Osswald, Pfothenhauer, Rowlands, Rutland, Sanders, Shapiro, Thelen, Turng; Associate Professors Krupenkin, Negrut, Pfefferkorn, Ploeg, Qian, Rothamer, Shedd, Suresh, Trujillo, Zinn; Assistant Professors Adamczyk, Eriten, Henak, Kokjohn, Miller, Min, Roldan-Alzate, Rudolph; Faculty affiliates Allen, Bonazza, Clemons, Corradini, Holloway, Kammer, Luzzio, Reindl, Scarlet, Schauer, Smith

## MEDICAL PHYSICS

**Administrative Unit:** Medical Physics

**College/School:** School of Medicine and Public Health

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

One of the basic science departments of the UW–Madison School of Medicine and Public Health, the Department of Medical Physics offers comprehensive training in diagnostic and therapeutic medical physics and in health physics. Achievement of the M.S. or Ph.D. in this department reflects strong scholarship in one of the top medical physics programs in the United States. Graduates are prepared for teaching, research, and clinical physics positions in medical centers, national laboratories, and universities, and in the medical and nuclear technology industries.

Medical physicists may participate professionally in the radiation treatment of cancer patients, in advanced medical imaging and diagnostic procedures, or in related areas of research and teaching. Health physicists may operate radiation protection programs at nuclear industrial facilities, hospitals, or laboratories, or may perform research on methods of measuring ionizing radiations (i.e., dosimetry).

A unique quality of the medical physics program is the broad range of expertise and research interests of the faculty. Students receive training in diagnostic x-ray physics, x-ray computerized tomography, magnetic resonance imaging and spectroscopy, nuclear medicine and positron emission tomography (PET) imaging, biomagnetism, medical ultrasound, elastography, radiation dosimetry, radiation treatment planning, and radiobiology.

The Ph.D. is primarily a research degree that extends the student's depth of knowledge in one of the specialty areas. Faculty positions at universities, research positions, and an increasing number of clinical physics positions require the Ph.D. degree. Medical physics faculty maintain close collaborative ties with faculty in other departments, including human oncology, radiology, cardiology, medicine, psychiatry, and pharmacology, broadening the scope of research opportunities open to medical physics students and providing access to sophisticated clinical facilities.

The department also houses the Medical Radiation Research Center and Accredited Dosimetry Calibration Laboratory, one of four in the U.S. accredited by the American Association of Physicists in Medicine. In addition, the department provides clinical support services to the radiology and human oncology departments. It also operates a PET radiotracer production facility, a medical image analysis laboratory, and a small bore MRI scanner in the medical school's small animal imaging laboratory. Each of these facilities provides unique training and support for graduate students.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Medical Physics, Doctoral Minor (p. 536)
- Medical Physics, M.S. (p. 536)
- Medical Physics, Ph.D. (p. 538)

### PEOPLE

**Faculty:** Professors Jackson (chair), Alexander, Bayouth, Block, Campagnola, Chen, Christian, DeJesus, DeWerd, Fain, Grist, Hall, Henderson, Jeraj, Korosec, Meyerand, Peppler, Reeder, Thomadsen, Varghese, Wakai; Associate Professors Brace, Cai, Emborg, Ranallo, Vetter, Weichert, Wieben; Assistant Professors Bednarz, Birn, Culberson, Kissick, Li, Nagle, Prabhakaran, Smilowitz, Speidel; Emeritus Professors DeLuca, Holden, Mackie, Madsen, Mistretta, Nickles, Paliwal, Van Lysel, Zagzebski

## MEDICAL PHYSICS, DOCTORAL MINOR

### REQUIREMENTS

A candidate for the Ph.D. in another department who wishes to minor in medical physics is required to elect a minimum of 9 credits. The medical physics graduate committee chair should be consulted for detailed information.

### PEOPLE

**Faculty:** Professors Jackson (chair), Alexander, Bayouth, Block, Campagnola, Chen, Christian, DeJesus, DeWerd, Fain, Grist, Hall, Henderson, Jeraj, Korosec, Meyerand, Peppler, Reeder, Thomadsen, Varghese, Wakai; Associate Professors Brace, Cai, Emborg, Ranallo, Vetter, Weichert, Wieben; Assistant Professors Bednarz, Birn, Culberson, Kissick, Li, Nagle, Prabhakaran, Smilowitz, Speidel; Emeritus Professors DeLuca, Holden, Mackie, Madsen, Mistretta, Nickles, Paliwal, Van Lysel, Zagzebski

## MEDICAL PHYSICS, M.S.

One of the basic science departments of the UW–Madison School of Medicine and Public Health, the Department of Medical Physics offers comprehensive training in diagnostic and therapeutic medical physics and in health physics. Achievement of the M.S. or Ph.D. in this department reflects strong scholarship in one of the top medical physics programs in the United States. Graduates are prepared for teaching, research, and clinical physics positions in medical centers, national laboratories, and universities, and in the medical and nuclear technology industries.

Medical physicists may participate professionally in the radiation treatment of cancer patients, in advanced medical imaging and diagnostic procedures, or in related areas of research and teaching. Health physicists may operate radiation protection programs at nuclear industrial facilities, hospitals, or laboratories, or may perform research on methods of measuring ionizing radiations (i.e., dosimetry).

A unique quality of the medical physics program is the broad range of expertise and research interests of the faculty. Students receive training in diagnostic x-ray physics, x-ray computerized tomography, magnetic resonance imaging and spectroscopy, nuclear medicine and positron emission tomography (PET) imaging, biomagnetism, medical ultrasound,



elastography, radiation dosimetry, radiation treatment planning, and radiobiology.

The Ph.D. is primarily a research degree that extends the student's depth of knowledge in one of the specialty areas. Faculty positions at universities, research positions, and an increasing number of clinical physics positions require the Ph.D. degree. Medical physics faculty maintain close collaborative ties with faculty in other departments, including human oncology, radiology, cardiology, medicine, psychiatry, and pharmacology, broadening the scope of research opportunities open to medical physics students and providing access to sophisticated clinical facilities.

The department also houses the Medical Radiation Research Center and Accredited Dosimetry Calibration Laboratory, one of four in the U.S. accredited by the American Association of Physicists in Medicine. In addition, the department provides clinical support services to the radiology and human oncology departments. It also operates a PET radiotracer production facility, a medical image analysis laboratory, and a small bore MRI scanner in the medical school's small animal imaging laboratory. Each of these facilities provides unique training and support for graduate students.

## FUNDING

The department typically supports 85–90 percent of students enrolled in the medical physics graduate program through department or university fellowships, research or teaching assistantships, or NIH–NRSA traineeships. All awards include a comprehensive health insurance program and remission of tuition. The student is responsible for segregated fees.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

29 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (16 out of 32 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 3 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to the master's degree program is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, 7 credits in medical physics courses from a UW–Madison undergraduate degree above the undergraduate graduation requirements are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 500 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to the master's degree program is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

All students in the program are required to take 8 core curriculum courses, namely MED PHYS/B M E/H ONCOL/PHYSICS 501 Radiological Physics and Dosimetry, MED PHYS/PHYSICS 563 Radionuclides in Medicine and Biology, MED PHYS/B M E 566 Physics of Radiotherapy, MED PHYS/B M E 567 The Physics of Diagnostic Radiology, MED PHYS/N E 569 Health Physics and Biological Effects, MED PHYS/B M E 573 Medical Image Science: Mathematical and Conceptual Foundations, MED PHYS/B M E 578 Non-Ionizing Diagnostic Imaging, and MED PHYS 701 Ethics and the responsible conduct of research and practice of Medical Physics along with associated laboratories (totaling 25 credits). These core courses, along with an acceptable course in anatomy / physiology, satisfy CAMPEP course requirements. Masters degree students must also complete 2 credits of Journal Club (MED PHYS 990 Research).

Health Physics: Candidates must complete 8 core courses totaling 25 credits, including MED PHYS/B M E/H ONCOL/PHYSICS 501 Radiological Physics and Dosimetry, MED PHYS/PHYSICS 563 Radionuclides in Medicine and Biology, MED PHYS/B M E 566 Physics of Radiotherapy, MED PHYS/B M E 567 The Physics of Diagnostic Radiology, MED PHYS/N E 569 Health Physics and Biological Effects, MED PHYS/B M E 573 Medical Image Science: Mathematical and Conceptual Foundations, MED PHYS/B M E 578 Non-Ionizing Diagnostic Imaging, and MED PHYS 701 Ethics and the responsible conduct of research and practice of Medical Physics plus an independent reading course on Health Physics Rules and Regulations for 1 credit. N E 427 Nuclear Instrumentation Laboratory and N E 571 Economic and Environmental Aspects of Nuclear Energy must also be taken. In addition, 6 elective credits are required. anatomy for 3 credits or physiology for 5 credits (or alternative) is required as one of the electives. This is a total of 36 credits, including 2 credits of Journal Club (MED PHYS 990 Research).

An exemption from the core curriculum requirement requires the approval of the chair of the Graduate Committee. If the entirety of the core curriculum is not taken, the student will not satisfy the CAMPEP core curriculum requirement..

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

See Medical Physics Graduate Student Handbook ([http://www.medphysics.wisc.edu/graduate/documents/handbook\\_june\\_2014.pdf](http://www.medphysics.wisc.edu/graduate/documents/handbook_june_2014.pdf)) for department criteria for satisfactory academic progress.

## PROBATION POLICY

See Medical Physics Graduate Student Handbook ([http://www.medphysics.wisc.edu/graduate/documents/handbook\\_june\\_2014.pdf](http://www.medphysics.wisc.edu/graduate/documents/handbook_june_2014.pdf)) for more information.

## ADVISOR / COMMITTEE

Candidates must acquire a major professor/advisor by the beginning of the second semester of study.

## ASSESSMENTS AND EXAMINATIONS

Candidates are expected to take the qualifying examination by the end of the second year of study. Contact the department for more information.

## TIME CONSTRAINTS

The qualifying examination should be taken by the end of the second year. Master's degree course requirements should be completed by the end of the second year.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

About 150 applicants per year are attracted to the medical physics program. Each fall the program admits 15–20 students based on academic record. This results in an average enrollment of approximately 100 students each semester. Less than one-fourth of the students pursue the M.S. degree as a terminal degree, and the remainder continue on to the Ph.D.

A bachelor's degree in physics is considered the best preparation for graduate study in medical physics, but majors such as nuclear engineering, biomedical engineering, electrical engineering, or chemistry may also be acceptable. The student's math background should include calculus, differential equations, linear algebra, and Fourier analysis, such as might be learned in modern optics or undergraduate quantum theory. Some facility in computer programming and electronic instrumentation is desirable. One year of chemistry, a year of biology, and an introductory course in physiology are also advantageous.

Beginning graduate students should start their studies in the fall semester, as the course sequence is based on that assumption. Students applying for admission should submit an online application and all supporting documentation by December 1 (for domestic applications; international applications are due November 15), to ensure consideration for admission and financial support to begin the following fall.

Admission to the graduate program is competitive. Applications are judged on the basis of a student's previous academic record, Graduate Record Exam (GRE) scores, research experience, letters of

recommendation, and personal statement of reasons for interest in graduate study in medical physics.

The application process is in two parts:

1. Complete the online application to the Graduate School and pay application fee.
2. Provide electronic copies of resume (include awards, fellowships, and scholarships received, publications, volunteer activities, and research experience); the "applicant data sheet"; personal statement of reasons for interest in graduate study in medical physics; and mail **two** official sets of paper transcripts to the department. *Note:* Recommendation letters are submitted electronically through the online application. To report Graduate Record Exam (GRE) scores, use Institution Code 1846 for the University of Wisconsin–Madison.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, and/or elaborates theories, research methods, and approaches to inquiry or schools of practice in the field of medical physics.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of medical physics.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates and/or synthesizes information pertaining to questions or challenges in the field of medical physics.
- Communicates clearly in both oral and written formats.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Jackson (chair), Alexander, Bayouth, Block, Campagnola, Chen, Christian, DeJesus, DeWerd, Fain, Grist, Hall, Henderson, Jeraj, Korosec, Meyerand, Peppler, Reeder, Thomadsen, Varghese, Wakai; Associate Professors Brace, Cai, Emborg, Ranallo, Vetter, Weichert, Wieben; Assistant Professors Bednarz, Birn, Culberson, Kissick, Li, Nagle, Prabhakaran, Smilowitz, Speidel; Emeritus Professors DeLuca, Holden, Mackie, Madsen, Mistretta, Nickles, Paliwal, Van Lyse, Zagzebski

## MEDICAL PHYSICS, PH.D.

One of the basic science departments of the UW–Madison School of Medicine and Public Health, the Department of Medical Physics offers comprehensive training in diagnostic and therapeutic medical physics and in health physics. Achievement of the M.S. or Ph.D. in this department reflects strong scholarship in one of the top medical physics programs in the United States. Graduates are prepared for teaching, research, and clinical physics positions in medical centers, national laboratories, and universities, and in the medical and nuclear technology industries.

Medical physicists may participate professionally in the radiation treatment of cancer patients, in advanced medical imaging and

diagnostic procedures, or in related areas of research and teaching. Health physicists may operate radiation protection programs at nuclear industrial facilities, hospitals, or laboratories, or may perform research on methods of measuring ionizing radiations (i.e., dosimetry).

A unique quality of the medical physics program is the broad range of expertise and research interests of the faculty. Students receive training in diagnostic x-ray physics, x-ray computerized tomography, magnetic resonance imaging and spectroscopy, nuclear medicine and positron emission tomography (PET) imaging, biomagnetism, medical ultrasound, elastography, radiation dosimetry, radiation treatment planning, and radiobiology.

The Ph.D. is primarily a research degree that extends the student's depth of knowledge in one of the specialty areas. Faculty positions at universities, research positions, and an increasing number of clinical physics positions require the Ph.D. degree. Medical physics faculty maintain close collaborative ties with faculty in other departments, including human oncology, radiology, cardiology, medicine, psychiatry, and pharmacology, broadening the scope of research opportunities open to medical physics students and providing access to sophisticated clinical facilities.

The department also houses the Medical Radiation Research Center and Accredited Dosimetry Calibration Laboratory, one of four in the U.S. accredited by the American Association of Physicists in Medicine. In addition, the department provides clinical support services to the radiology and human oncology departments. It also operates a PET radiotracer production facility, a medical image analysis laboratory, and a small bore MRI scanner in the medical school's small animal imaging laboratory. Each of these facilities provides unique training and support for graduate students.

## FUNDING

The department typically supports 85–90 percent of students enrolled in the medical physics graduate program through department or university fellowships, research or teaching assistantships, or NIH–NRSA traineeships. All awards include a comprehensive health insurance program and remission of tuition. The student is responsible for segregated fees.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

54 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

42 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Seventy-five percent of degree coursework (40 credits out of 54 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 12 credits of medical physics graduate coursework from other institutions. Coursework earned five years or more prior to admission to the doctoral degree program is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, 7 credits in medical physics courses from a UW–Madison undergraduate degree above the undergraduate graduation requirements are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 500 or above taken as a UW–Madison Special student. Coursework earned five years or more prior to admission to the doctoral degree program is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Completion of the core and elective course requirements as defined for the master's degree is required. See the master's degree specific courses section of this table.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

The 54 credits needed to satisfy the Ph.D. degree requirement must include 9 credits of graduate-level courses (greater than and including 300 level) constituting a minor subject area, consisting of a coherent body of work complementary to the candidate's research. The objective of the minor course requirement is to add a defined breadth to the candidate's education. Please see the Medical Physics Graduate Student Handbook (<https://www.medphysics.wisc.edu/graduate>) for more information regarding minor options.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

See Medical Physics Graduate Student Handbook ([http://www.medphysics.wisc.edu/graduate/documents/handbook\\_june\\_2014.pdf](http://www.medphysics.wisc.edu/graduate/documents/handbook_june_2014.pdf)) on department criteria for satisfactory academic progress.

### PROBATION POLICY

See Medical Physics Graduate Student Handbook ([http://www.medphysics.wisc.edu/graduate/documents/handbook\\_june\\_2014.pdf](http://www.medphysics.wisc.edu/graduate/documents/handbook_june_2014.pdf)) for more information.

## ADVISOR / COMMITTEE

Candidates must acquire a major professor/advisor by the beginning of the second semester of study.

See Medical Physics Graduate Student Handbook ([http://www.medphysics.wisc.edu/graduate/documents/handbook\\_june\\_2014.pdf](http://www.medphysics.wisc.edu/graduate/documents/handbook_june_2014.pdf)) for department criteria for doctoral committee.

## ASSESSMENTS AND EXAMINATIONS

The qualifying examination should be taken by the end of the second year. Students should complete the preliminary examination by the end of the third year. Permission from the graduate committee and department chair is required if the exam needs to be taken after the third year. Defense of a dissertation is required within five years of successful completion of the preliminary examination.

## TIME CONSTRAINTS

The qualifying examination should be taken by the end of the second year. Students should complete their preliminary examination by the end of the third year. Permission from the graduate committee and department chair is required if the exam needs to be taken after the third year. Defense of a dissertation is required within five years of successful completion of the preliminary examination.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

About 150 applicants per year are attracted to the medical physics program. Each fall the program admits 15–20 students based on academic record. This results in an average enrollment of approximately 100 students each semester. Less than one-fourth of the students pursue the M.S. degree as a terminal degree, and the remainder continue on to the Ph.D.

A bachelor's degree in physics is considered the best preparation for graduate study in medical physics, but majors such as nuclear engineering, biomedical engineering, electrical engineering, or chemistry may also be acceptable. The student's math background should include calculus, differential equations, linear algebra, and Fourier analysis, such as might be learned in modern optics or undergraduate quantum theory. Some facility in computer programming and electronic instrumentation is desirable. One year of chemistry, a year of biology, and an introductory course in physiology are also advantageous.

Beginning graduate students should start their studies in the fall semester, as the course sequence is based on that assumption. Students applying for admission should submit an online application and all supporting documentation by December 1 (for domestic applications; international applications are due November 15), to ensure consideration for admission and financial support to begin the following fall.

Admission to the graduate program is competitive. Applications are judged on the basis of a student's previous academic record, Graduate Record Exam (GRE) scores, research experience, letters of recommendation, and personal statement of reasons for interest in graduate study in medical physics.

The application process is in two parts:

1. Complete the online application to the Graduate School and pay application fee.
2. Provide electronic copies of resume (include awards, fellowships, and scholarships received, publications, volunteer activities, and research experience); the "applicant data sheet"; personal statement of reasons for interest in graduate study in medical physics; and mail two official sets of paper transcripts to the department. Note: Recommendation letters are submitted electronically through the online application. To report Graduate Record Exam (GRE) scores, use Institution Code 1846 for the University of Wisconsin–Madison.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of medical physics.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of medical physics.
- Creates research, scholarship, or performance that makes a substantive scientific contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of medical physics to society.
- Communicates complex ideas in a clear and understandable manner in both oral and written formats.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Jackson (chair), Alexander, Bayouth, Block, Campagnola, Chen, Christian, DeJesus, DeWerd, Fain, Grist, Hall, Henderson, Jeraj, Korosec, Meyerand, Pepler, Reeder, Thomadsen, Varghese, Wakai; Associate Professors Brace, Cai, Emborg, Ranallo, Vetter, Weichert, Wieben; Assistant Professors Bednarz, Birn, Culberson, Kissick, Li, Nagle, Prabhakaran, Smilowitz, Speidel; Emeritus Professors DeLuca, Holden, Mackie, Madsen, Mistretta, Nickles, Paliwal, Van Lysel, Zagzebski

## MEDICINE AND PUBLIC HEALTH—SCHOOL-WIDE

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE PROFESSIONAL/CERTIFICATES

- Endocrinology-Reproductive Physiology, Doctoral Minor (p. 541)
- Endocrinology-Reproductive Physiology, M.S. (p. 541)
- Endocrinology-Reproductive Physiology, Ph.D. (p. 543)
- Molecular and Environmental Toxicology, Doctoral Minor (p. 545)
- Molecular and Environmental Toxicology, M.S. (p. 546)
- Molecular and Environmental Toxicology, Ph.D. (p. 548)
- Neuroscience, Doctoral Minor (p. 550)
- Neuroscience, M.S. (p. 550)
- Neuroscience, Ph.D. (p. 552)
- Physiology, Doctoral Minor (p. 555)
- Physiology, M.S. (p. 555)
- Physiology, Ph.D. (p. 556)

### ENDOCRINOLOGY-REPRODUCTIVE PHYSIOLOGY, DOCTORAL MINOR

### ENDOCRINOLOGY-REPRODUCTIVE PHYSIOLOGY, M.S.

**Administrative Unit:** Basic Research, Biotechnology, and Graduate Studies

**College/School:** College of Agricultural and Life Sciences, School of Medicine and Public Health

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The Endocrinology and Reproductive Physiology (ERP) Program is a multidisciplinary degree-granting program designed to promote research in both endocrinology and reproductive biology, to provide training and experience for pre- and post-doctoral students interested in these fields, and to provide training in problems of endocrine physiology and reproductive physiology in animals and humans. The program trains master's and Ph.D. candidates for teaching and research careers in all aspects of the interrelated fields of endocrinology and reproductive physiology—basic, clinical and translational. Students have access to a full range of research facilities throughout campus. A joint M.D./Ph.D. degree is also offered by the School of Medicine and Public Health and student trainees are eligible to train for the Ph.D. in the ERP program.

Postdoctoral Fellows are encouraged to join the program as associate members and participate in the program's diverse activities. While postdoctoral positions are arranged directly with individual faculty members, ERP also seeks NIH support in this area. The program supports

and mentors the training of both Ph.D. and M.D. fellows in translational studies.

The multidisciplinary research and the diverse interests of the faculty make possible many approaches to the study of both endocrinology and reproduction, providing the individual student with a wide selection of research training experiences. Research opportunities are available, but not limited to: endocrine molecular signaling, endocrine physiology in body function and dysfunction, stem-cell programming, gamete and embryo biology, pregnancy, lactation, neuroendocrinology and placenta development. Research models range from molecular and cellular all the way to whole animal including nonhuman primates and humans.

All students complete a core set of courses during the first two years of enrollment in the program including participation in the weekly seminar program. After fulfilling core course requirements, students have the ability to design a curriculum that meets individual research and career interests. Students also have multiple opportunities to present research work in courses, seminars and symposia, and at regional, national and international scientific meetings. The preliminary exam for Ph.D. candidates is based on the research project and is structured in the form of a competitive grant proposal. Part one of the exam is development of the written proposal and submission to the thesis committee for review. Part two is focused on the rebuttal and oral review of the comments. Students should aim to complete the preliminary exam by the start of the third year of study and defend the thesis in the fifth year.

All students are required to form a thesis committee during the first year of study and have an annual meeting with the members. A written progress report must be submitted annually to the program administrator.

### FUNDING

More than 95 percent of the program's enrolled students are supported by a research assistantship or fellowship. Incoming applicants are considered for competitive fellowships during the admissions process; no additional application is required. Additional fellowship support for minority and educationally disadvantaged students is also available (prospective students should contact the program administrator at the time of application). Teaching assistantships are discouraged until the student has passed the preliminary exam. Training-grant support may be considered in the third through fifth years of study for Ph.D. students, assuming the student meets citizenship criteria, satisfactory academic progress, has a project that is relevant to the mission of NICHD, and continued funding by the National Institutes of Health. Financial support generally includes tuition remission, monthly stipend check, and participation in the State of Wisconsin health insurance program. Benefit costs change on an annual basis; contact the program administrator for current rates. Support for international students varies by faculty advisor. International students offered admission will be required to submit a notarized financial statement prior to visa documents being issued.

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

## MASTER'S DEGREES

M.S. with available terminal, and MFM fellows tracks

## MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half (16 credits of the required 30) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Courses taken that fulfill equivalent program requirements may be considered to exempt a class. Exemptions must be discussed with the program director. One course may be substituted for another due to background and interest. Statistics courses may be considered by the student's advisory committee for exemption; however, students are still strongly encouraged to have this refresher. Decisions of the director are final.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 30 credits for their degree.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Courses taken that fulfill equivalent program requirements may be considered to exempt a class. Exemptions must be discussed with the program director. One course may be substituted for another due to background, interest, or program-related career relevance. Statistics courses may be considered by the student's advisory committee for exemption; however, students are still strongly encouraged to have this refresher or choose one with different emphasis (e.g., clinical). Decisions of the director are final.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 30 credits for the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Courses taken that fulfill equivalent program requirements may be considered to exempt a class. Exemptions must be discussed with the program director. One course may be substituted for another due to background, interest, or program-related career relevance. Statistics courses may be considered by the student's advisory committee for exemption; however, students are still strongly encouraged to have this refresher or choose one with different emphasis (e.g., clinical). Decisions of the director are final.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 30 credits for the degree.

## CREDITS PER TERM ALLOWED

12 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission to the program is competitive; applications are due December 1 of each year for fall semester. Potential applicants will have a major in the biological sciences, a minimum undergraduate GPA of 3.3/4.0, and appropriate preparatory courses in physiology, chemistry, biochemistry, biology, physics, calculus, statistics, organic chemistry, and genetics. Prior laboratory research experience is strongly recommended.

The application process includes the completion and submission of the online Graduate School application, payment of the application fee, submission of a personal statement for graduate study, receipt of GRE scores and TOEFL or International English Language Testing System (IELTS) scores (TOEFL and IELTS are for international applicants) by Educational Testing Service, receipt of three letters of recommendation, and a current curriculum vitae. Applicants are strongly encouraged to use the online reference feature in the Graduate School application system. Transcripts from all colleges and universities attended should be sent directly to the program administrator.

Completed applications for fall entry are reviewed by a panel of faculty. Applicants who pass this first step will be contacted and have materials distributed to all faculty in the program for further consideration. Otherwise applications for spring or summer term are possible, but only with the approval of the admissions committee.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Bird (director) (Obstetrics and Gynecology), Abbott (Obstetrics and Gynecology), Alarid (Oncology), Bosu (Medical Sciences/Veterinary Medicine), Downs (Cell and Regenerative Biology), Drezner (Medicine), Golos (Comparative Biosciences), Jefcoate (Cell and Regenerative Biology), Khatib (Dairy Sciences), Kling (Pediatrics), Levine (Neuroscience), Magness (Obstetrics and Gynecology), Martin (Biochemistry), Ntambi (Biochemistry/Nutritional Sciences), Odorico (Surgery), Parrish (Animal Sciences), Pelegri (Genetics), Peterson (Pharmacy), Schuler (Comparative Biosciences/Veterinary Medicine), Shah (Obstetrics and Gynecology), Terasawa (Pediatrics), Thomson (Cell and Regenerative Biology), Wiltbank (Dairy Science), Xu (Oncology), and Zheng (Obstetrics and Gynecology); Associate Professors Atwood (Medicine), Audhya (Biomolecular Chemistry), Duello (Obstetrics and Gynecology), Jorgensen (Comparative Biosciences), Liu (Surgery), Patankar (Obstetrics and Gynecology), Payseur (Genetics), Vezina (Comparative Biosciences/Veterinary Medicine), and Watters (Comparative Biosciences/Veterinary Medicine); Assistant Professors Alisch (Psychiatry), Arendt (Comparative Biosciences), Blum (Cell and Regenerative Biology), Davis (Medicine), Hernandez (Dairy Science),

Kimple (Medicine), Kreeger (Biomedical Engineering), Merrins (Medicine), and Salih (Obstetrics and Gynecology)

## ENDOCRINOLOGY-REPRODUCTIVE PHYSIOLOGY, PH.D.

**Administrative Unit:** Basic Research, Biotechnology, and Graduate Studies

**College/School:** College of Agricultural and Life Sciences, School of Medicine and Public Health

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The Endocrinology and Reproductive Physiology (ERP) Program is a multidisciplinary degree-granting program designed to promote research in both endocrinology and reproductive biology, to provide training and experience for pre- and post-doctoral students interested in these fields, and to provide training in problems of endocrine physiology and reproductive physiology in animals and humans. The program trains master's and Ph.D. candidates for teaching and research careers in all aspects of the interrelated fields of endocrinology and reproductive physiology—basic, clinical and translational. Students have access to a full range of research facilities throughout campus. A joint M.D./Ph.D. degree is also offered by the School of Medicine and Public Health and student trainees are eligible to train for the Ph.D. in the ERP program.

Postdoctoral Fellows are encouraged to join the program as associate members and participate in the program's diverse activities. While postdoctoral positions are arranged directly with individual faculty members, ERP also seeks NIH support in this area. The program supports and mentors the training of both Ph.D. and M.D. fellows in translational studies.

The multidisciplinary research and the diverse interests of the faculty make possible many approaches to the study of both endocrinology and reproduction, providing the individual student with a wide selection of research training experiences. Research opportunities are available, but not limited to: endocrine molecular signaling, endocrine physiology in body function and dysfunction, stem-cell programming, gamete and embryo biology, pregnancy, lactation, neuroendocrinology and placenta development. Research models range from molecular and cellular all the way to whole animal including nonhuman primates and humans.

All students complete a core set of courses during the first two years of enrollment in the program including participation in the weekly seminar program. After fulfilling core course requirements, students have the ability to design a curriculum that meets individual research and career interests. Students also have multiple opportunities to present research work in courses, seminars and symposia, and at regional, national and international scientific meetings. The preliminary exam for Ph.D. candidates is based on the research project and is structured in the form of a competitive grant proposal. Part one of the exam is development of the written proposal and submission to the thesis committee for review. Part two is focused on the rebuttal and oral review of the comments. Students should aim to complete the preliminary exam by the start of the third year of study and defend the thesis in the fifth year.

All students are required to form a thesis committee during the first year of study and have an annual meeting with the members. A written progress report must be submitted annually to the program administrator.

## FUNDING

More than 95 percent of the program's enrolled students are supported by a research assistantship or fellowship. Incoming applicants are considered for competitive fellowships during the admissions process; no additional application is required. Additional fellowship support for minority and educationally disadvantaged students is also available (prospective students should contact the program administrator at the time of application). Teaching assistantships are discouraged until the student has passed the preliminary exam. Training-grant support may be considered in the third through fifth years of study for Ph.D. students, assuming the student meets citizenship criteria, satisfactory academic progress, has a project that is relevant to the mission of NICHD, and continued funding by the National Institutes of Health. Financial support generally includes tuition remission, monthly stipend check, and participation in the State of Wisconsin health insurance program. Benefit costs change on an annual basis; contact the program administrator for current rates. Support for international students varies by faculty advisor. International students offered admission will be required to submit a notarized financial statement prior to visa documents being issued.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half (26 credits of the required 51) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Courses taken that fulfill equivalent program requirements may be considered to exempt a class. Exemptions must be discussed with the program director. One course may be substituted for another due to background and interest. Statistics courses may be considered by the student's advisory committee for exemption; however, students are still

strongly encouraged to have this refresher. Decisions of the director are final.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 51 credits for their degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Courses taken that fulfill equivalent program requirements may be considered to exempt a class. Exemptions must be discussed with the program director. One course may be substituted for another due to background, interest, or program-related career relevance. Statistics courses may be considered by the student's advisory committee for exemption; however, students are still strongly encouraged to have this refresher or choose one with different emphasis (e.g., clinical). Decisions of the director are final.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 51 credits for the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Courses taken that fulfill equivalent program requirements may be considered to exempt a class. Exemptions must be discussed with the program director. One course may be substituted for another due to background, interest, or program-related career relevance. Statistics courses may be considered by the student's advisory committee for exemption; however, students are still strongly encouraged to have this refresher or choose one with different emphasis (e.g. clinical). Decisions of the director are final.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 51 credits for the degree.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students are not required to complete a doctoral minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result



in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within 5 years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission to the program is competitive; applications are due December 1 of each year for fall semester. Potential applicants will have a major in the biological sciences, a minimum undergraduate GPA of 3.3/4.0, and appropriate preparatory courses in physiology, chemistry, biochemistry, biology, physics, calculus, statistics, organic chemistry, and genetics. Prior laboratory research experience is strongly recommended.

The application process includes the completion and submission of the online Graduate School application, payment of the application fee, submission of a personal statement for graduate study, receipt of GRE scores and TOEFL or International English Language Testing System (IELTS) scores (TOEFL and IELTS are for international applicants) by Educational Testing Service, receipt of three letters of recommendation, and a current curriculum vitae. Applicants are strongly encouraged to use the online reference feature in the Graduate School application system. Transcripts from all colleges and universities attended should be sent directly to the program administrator.

Completed applications for fall entry are reviewed by a panel of faculty. Applicants who pass this first step will be contacted and have materials distributed to all faculty in the program for further consideration.

Otherwise applications for spring or summer term are possible, but only with the approval of the admissions committee.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Bird (director) (Obstetrics and Gynecology), Abbott (Obstetrics and Gynecology), Alarid (Oncology), Bosu (Medical Sciences/Veterinary Medicine), Downs (Cell and Regenerative Biology), Drezner (Medicine), Golos (Comparative Biosciences), Jefcoate (Cell and Regenerative Biology), Khatib (Dairy Sciences), Kling (Pediatrics), Levine (Neuroscience), Magness (Obstetrics and Gynecology), Martin (Biochemistry), Ntambi (Biochemistry/Nutritional Sciences), Odorico (Surgery), Parrish (Animal Sciences), Pelegri (Genetics), Peterson (Pharmacy), Schuler (Comparative Biosciences/Veterinary Medicine), Shah (Obstetrics and Gynecology), Terasawa (Pediatrics), Thomson (Cell and Regenerative Biology), Wiltbank (Dairy Science), Xu (Oncology), and Zheng (Obstetrics and Gynecology); Associate Professors Atwood (Medicine), Audhya (Biomolecular Chemistry), Duello (Obstetrics and Gynecology), Jorgensen (Comparative Biosciences), Liu (Surgery), Patankar (Obstetrics and Gynecology), Payseur (Genetics), Vezina (Comparative Biosciences/Veterinary Medicine), and Watters (Comparative Biosciences/Veterinary Medicine); Assistant Professors Alisch (Psychiatry), Arendt (Comparative Biosciences), Blum (Cell and Regenerative Biology), Davis (Medicine), Hernandez (Dairy Science), Kimple (Medicine), Kreeger (Biomedical Engineering), Merrins (Medicine), and Salih (Obstetrics and Gynecology)

## MOLECULAR AND ENVIRONMENTAL TOXICOLOGY, DOCTORAL MINOR

### REQUIREMENTS

Students in other fields who elect to minor in molecular and environmental toxicology must satisfactorily complete a total of 10 credits in the program. Satisfactory completion of the minor requires a B average or better in the selected courses.

## PEOPLE

**Faculty:** See Faculty ([http://metc.wisc.edu/people\\_category/faculty](http://metc.wisc.edu/people_category/faculty)) on program website.

## MOLECULAR AND ENVIRONMENTAL TOXICOLOGY, M.S.

**Administrative Unit:** Molecular and Environmental Toxicology  
**College/School:** College of Agricultural and Life Sciences, School of Pharmacy, School of Medicine and Public Health  
**Admitting Plans:** M.S., Ph.D.  
**Degrees Offered:** M.S., Ph.D.  
**Minors and Certificates:** Doctoral Minor

Molecular and environmental toxicology is a multidisciplinary subject that involves the study of mechanisms of action of environmental toxicants on humans and other organisms and the behavior of these toxicants in the environment. The UW–Madison Molecular and Environmental Toxicology Center’s graduate program provides students with expert knowledge in at least one specialty plus a broad understanding of other specialties that contribute to the resolution of environmental toxicology problems. The center is sponsored by the School of Medicine and Public Health as well as the College of Agricultural and Life Sciences, the School of Veterinary Medicine and the School of Pharmacy. The center links researchers in numerous academic departments who are working on problems in this area.

An interdisciplinary graduate program leading to the doctor of philosophy or a master of science in molecular and environmental toxicology is offered by the center under the direction of an executive committee composed of faculty affiliated with the center. The program offers two general approaches: mechanisms of pathobiology of chemically induced disease and environmental activities of chemicals. Each approach is subdivided into focal areas including metabolic and genetic toxicology, neurotoxicology, and immunotoxicology; and ecotoxicology, bioremediation, and distribution and assessment of environmental chemicals. All students participate in a core curriculum that addresses these various areas and that is supplemented by other advanced, specialized courses. Students perform research under the guidance of one of the center’s graduate faculty members.

Recipients of graduate degrees in molecular and environmental toxicology pursue careers in governmental agencies (policymaking, regulations, standard setting, or research), private industry (e.g., hazardous waste management, occupational safety, consumer affairs, research and development, or regulatory compliance), and the academic community (teaching and research). The center office maintains specific information concerning career placements.

## FUNDING

Financial aid is provided to all students, usually in the form of grant-supported research assistantships, institutional fellowships, or advanced opportunity fellowships for minority or disadvantaged students. Students are encouraged to contact individual professors in their areas of interest to determine whether support is available for working in that lab.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER’S DEGREES

M.S., with non-thesis, and research/thesis tracks

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half (16 credits of the required 30) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Prior coursework that a student wants to have considered must be presented within the first month of UW–Madison residency. Core courses may be appealed, subject to Graduate Achievement Committee approval. Credit total of core course exemptions will need to be made up as electives. Elective credits may be appealed, subject to Graduate Achievement Committee approval; further electives will not need to be taken.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Core courses taken as an undergraduate will not need to be retaken, commonly including M&ENVTOX/MEDICINE/ONCOLOGY/PATH/PHM SCI/PHM COL-M/POP HLTH 625 Toxicology I and M&ENVTOX/MEDICINE/PATH/PHM SCI/PHM COL-M/POP HLTH 626 Toxicology II from the Pharm/Tox program and M&ENVTOX/AGRONOMY/ENTOM/F&W ECOL 634 Ecotoxicology: Impacts on Populations, Communities and Ecosystems in the F&W Ecol program. Equivalent number of didactic elective credits from graduate-level courses must be taken to fulfill the previously taken credits/courses.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

Core courses taken as a UW–Madison University Special student will not need to be taken, commonly including M&ENVTOX/MEDICINE/ONCOLOGY/PATH/PHM SCI/PHM COL-M/POP HLTH 625 Toxicology I and M&ENVTOX/MEDICINE/PATH/PHM SCI/PHM COL-M/POP HLTH 626 Toxicology II, as a student prepares for the toxicology program. Equivalent number of didactic elective credits from graduate-level courses must be taken to fulfill the previously taken credits/courses.

## CREDITS PER TERM ALLOWED

12 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
<b>Toxicology Core Curriculum</b>		
M&ENVTOX/ MEDICINE/ ONCOLOGY/PATH/ PHM SCI/PHMCOL- M/POP HLTH 625	Toxicology I	3
M&ENVTOX/ MEDICINE/PATH/ PHM SCI/PHMCOL- M/POP HLTH 626	Toxicology II	3
M&ENVTOX/ CIV ENGR/ SOIL SCI 631	Toxicants in the Environment: Sources, Distribution, Fate, & Effects	3
M&ENVTOX/ AGRONOMY/ ENTOM/ F&W ECOL 634	Ecotoxicology: Impacts on Populations, Communities and Ecosystems	1
M&ENVTOX 699	Special Problems (Directed Study Prelim A)	1-3
OBS&GYN 955/ SURG SCI 812	Responsible Conduct of Research for Biomedical Graduate Students	2

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

To qualify for graduate study in molecular and environmental toxicology, applicants normally have a bachelor's degree in a biological or physical science, with at least a 3.0 GPA (on a 4.0 scale). The following courses should be completed before entrance to the program: four semesters of chemistry, including at least one of organic (depending on the planned direction within the program, a semester of either analytical chemistry or biochemistry is highly recommended); one semester of math-based physics (a second semester is highly recommended); and three semesters of biology, including coverage of introductory genetics. One or more semesters of calculus is highly recommended. If applicants have not taken one semester of statistics, biometrics, or an equivalent course, and one semester of biochemistry equivalent to the UW–Madison Biochem 501 course, then these courses must be taken as part of the program and will fulfill elective credit requirements for the major. Students with a limited number of deficiencies may be admitted, but must eliminate these deficiencies early in their graduate study. Applicants are required to take the Graduate Record Exam (GRE). International students should also send scores of the Test of English as a Foreign Language (TOEFL), or International English Language Testing System (IELTS).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will be able to teach science, engaging audiences and helping them to learn.
- Students will demonstrate a didactic knowledge of both molecular toxicology and environmental toxicology.
- Students will be able to design future experiments and present them as a proposal, which contains background information, experimental processes, and account for any set-backs.
- Students will be able to write for a proper audience, revising and responding to reviewers as appropriate.
- Students will be able to verbally communicate their science and do-so in a clear manner for a variety of audiences.

### PROFESSIONAL CONDUCT

- Students will understand that science and research is based on trust - trust between scientists and colleagues, trust between scientists and policy makers, trust between scientists and advisory boards, and trust between scientists and society.

## PEOPLE

**Faculty:** See Faculty ([http://metc.wisc.edu/people\\_category/faculty](http://metc.wisc.edu/people_category/faculty)) on program website.

## MOLECULAR AND ENVIRONMENTAL TOXICOLOGY, PH.D.

**Administrative Unit:** Molecular and Environmental Toxicology  
**College/School:** College of Agricultural and Life Sciences, School of Pharmacy, School of Medicine and Public Health  
**Admitting Plans:** M.S., Ph.D.  
**Degrees Offered:** M.S., Ph.D.  
**Minors and Certificates:** Doctoral Minor

Molecular and environmental toxicology is a multidisciplinary subject that involves the study of mechanisms of action of environmental toxicants on humans and other organisms and the behavior of these toxicants in the environment. The UW–Madison Molecular and Environmental Toxicology Center’s graduate program provides students with expert knowledge in at least one specialty plus a broad understanding of other specialties that contribute to the resolution of environmental toxicology problems. The center is sponsored by the School of Medicine and Public Health as well as the College of Agricultural and Life Sciences, the School of Veterinary Medicine and the School of Pharmacy. The center links researchers in numerous academic departments who are working on problems in this area.

An interdisciplinary graduate program leading to the doctor of philosophy or a master of science in molecular and environmental toxicology is offered by the center under the direction of an executive committee composed of faculty affiliated with the center. The program offers two general approaches: mechanisms of pathobiology of chemically induced disease and environmental activities of chemicals. Each approach is subdivided into focal areas including metabolic and genetic toxicology, neurotoxicology, and immunotoxicology; and ecotoxicology, bioremediation, and distribution and assessment of environmental chemicals. All students participate in a core curriculum that addresses these various areas and that is supplemented by other advanced, specialized courses. Students perform research under the guidance of one of the center’s graduate faculty members.

Recipients of graduate degrees in molecular and environmental toxicology pursue careers in governmental agencies (policymaking, regulations, standard setting, or research), private industry (e.g., hazardous waste management, occupational safety, consumer affairs, research and development, or regulatory compliance), and the academic community (teaching and research). The center office maintains specific information concerning career placements.

## FUNDING

Financial aid is provided to all students, usually in the form of grant-supported research assistantships, institutional fellowships, or advanced opportunity fellowships for minority or disadvantaged students. Students are encouraged to contact individual professors in their areas of interest to determine whether support is available for working in that lab.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half (26 credits of the required 51) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Prior coursework that a student wants to have considered must be presented within the first month of UW–Madison residency. Core courses may be appealed, subject to Graduate Achievement Committee approval. Credit total of core course exemptions will need to be made up as electives. Elective credits may be appealed, subject to Graduate Achievement Committee approval; further electives will not need to be taken.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Core courses taken as an undergraduate will not need to be retaken, commonly including M&ENVTOX/MEDICINE/ONCOLOGY/PATH/PHM SCI/PHM COL-M/POP HLTH 625 Toxicology I and M&ENVTOX/MEDICINE/PATH/PHM SCI/PHM COL-M/POP HLTH 626 Toxicology II from the Pharm/Tox program and M&ENVTOX/AGRONOMY/ENTOM/F&W ECOL 634 Ecotoxicology: Impacts on Populations, Communities and Ecosystems in the F&W Ecol program. Equivalent number of didactic elective credits from graduate-level courses must be taken to fulfill the previously taken credits/courses.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

Core courses taken as a UW–Madison University Special student will not need to be taken, commonly including M&ENVTOX/MEDICINE/ONCOLOGY/PATH/PHM SCI/PHM COL-M/POP HLTH 625 Toxicology I and M&ENVTOX/MEDICINE/PATH/PHM SCI/PHM COL-M/POP HLTH 626 Toxicology II, as a student prepares for the toxicology program. Equivalent number of didactic elective credits from graduate-level courses must be taken to fulfill the previously taken credits/courses.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
<b>Toxicology Core Curriculum</b>		
M&ENVTOX/ MEDICINE/ ONCOLOGY/PATH/ PHM SCI/PHMCOL- M/POP HLTH 625	Toxicology I	3
M&ENVTOX/ MEDICINE/PATH/ PHM SCI/PHMCOL- M/POP HLTH 626	Toxicology II	3
M&ENVTOX/ CIV ENGR/ SOIL SCI 631	Toxicants in the Environment: Sources, Distribution, Fate, & Effects	3
M&ENVTOX/ AGRONOMY/ ENTOM/ F&W ECOL 634	Ecotoxicology: Impacts on Populations, Communities and Ecosystems	1
M&ENVTOX 699	Special Problems (Directed Study Prelim A)	1-3
OBS&GYN 955/ SURG SCI 812	Responsible Conduct of Research for Biomedical Graduate Students	2

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students are not required to complete a minor, but may do so if they wish.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

To qualify for graduate study in molecular and environmental toxicology, applicants normally have a bachelor's degree in a biological or physical science, with at least a 3.0 GPA (on a 4.0 scale). The following courses should be completed before entrance to the program: four semesters of chemistry, including at least one of organic (depending on the planned direction within the program, a semester of either analytical chemistry or biochemistry is highly recommended); one semester of math-based physics (a second semester is highly recommended); and three semesters of biology, including coverage of introductory genetics. One or more semesters of calculus is highly recommended. If applicants have not taken one semester of statistics, biometrics, or an equivalent course, and one semester of biochemistry equivalent to the UW-Madison Biochem 501 course, then these courses must be taken as part of the program and will fulfill elective credit requirements for the major. Students with a limited number of deficiencies may be admitted, but must eliminate these deficiencies early in their graduate study. Applicants are required to take the Graduate Record Exam (GRE). International students should also send scores of the Test of English as a Foreign Language (TOEFL), or International English Language Testing System (IELTS).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will be able to teach science, engaging audiences and helping them to learn.
- Students will demonstrate a didactic knowledge of both molecular toxicology and environmental toxicology.
- Students will be able to design future experiments and present them as a proposal, which contains background information, experimental processes, and account for any set-backs.
- Students will be able to verbally communicate their science and do-so in a clear manner for a variety of audiences.

- Students will be able to write for a proper audience, revising and responding to reviewers as appropriate.

## PROFESSIONAL CONDUCT

- Students will understand that science and research is based on trust - trust between scientists and colleagues, trust between scientists and policy makers, trust between scientists and advisory boards, and trust between scientists and society.

## PEOPLE

**Faculty:** See Faculty ([http://metc.wisc.edu/people\\_category/faculty](http://metc.wisc.edu/people_category/faculty)) on program website.

## NEUROSCIENCE, DOCTORAL MINOR

Neuroscience as a discipline is at a vital juncture. Groundbreaking advances such as mapping of the human genome, development of advanced molecular, genetic, and imaging technologies, and novel integrative approaches have expanded knowledge about the workings of the brain as never before. With this increased understanding, neuroscientists now envision significant treatments for numerous diseases, including neurodegenerative diseases, psychiatric illnesses, and developmental and emotional disorders. The doctoral minor in neuroscience is both interdepartmental and interdisciplinary. The course curriculum draws on expertise from faculty who are spread across over 22 departments on campus.

A doctoral minor in neuroscience will be of interest to doctoral students who are interested in augmenting the discipline to their research. The minor emphasizes the core sequence of cell and molecular neuroscience and systems neuroscience as well as a midlevel graduate course in one of the two areas: cell/molecular/developmental or systems/behavior.

## REQUIREMENTS

To complete the Minor, you are required to complete 9 credits. NTP/PHMCOL-M/PHYSIOL 610 Cellular and Molecular Neuroscience, NTP/ANATOMY/PHMCOL-M/PHYSIOL/PSYCH 611 Systems Neuroscience and a NTP mid-level course must be completed as part of the requirement. A list of approved NTP mid-level courses can be found here: <http://ntp.neuroscience.wisc.edu/mid-levels.htm>. Students must receive a grade point average of 3.0 for all required courses to receive the minor.

## ADMISSIONS

Contact Mallory Musolf ([musolf@wisc.edu](mailto:musolf@wisc.edu), 608-262-4932).

## NEUROSCIENCE, M.S.

**Administrative Unit:** Neuroscience Training Program  
**College/School:** School of Medicine and Public Health  
**Admitting Plans:** Ph.D.  
**Degrees Offered:** M.S., Ph.D.  
**Minors and Certificates:** Doctoral Minor

The neuroscience training program (NTP) was established in 1971. Currently, it comprises over 100 faculty members whose research

interests range from molecular neurobiology to integrative systems. The program is designed to prepare students for careers in research and teaching. On average the number of students in the program is approximately 50, half of whom are women. The program is best suited for students who are independent and wish to take a direct role in determining their graduate education. Training leads to the Ph.D. degree in neuroscience or the M.D./Ph.D. degree in cooperation with the School of Medicine and Public Health.

The doctoral program of each graduate student in the training program is tailored to meet individual needs. Each student's program is supervised by an advisory committee of five faculty members selected by the student in consultation with the major professor. During the first year students complete three laboratory rotations and take one-semester courses in molecular/cellular neuroscience and systems neuroscience. Students also take one upper-level course in molecular/cellular and systems neuroscience. Additional advanced courses may be taken to complement individual research interests.

A preliminary examination is required of all Ph.D. degree candidates at the end of the second year of graduate study. The examination consists of two written papers that are presented orally to the student's advisory committee. The first paper is a critical evaluation of a research topic outside the student's major area of interest. The second paper is a thesis research proposal. Additional requirements for the Ph.D. degree are attendance at the weekly neuroscience seminar and completion of one semester of teaching.

The central forum for intellectual exchange in the program is the neuroscience seminar (NTP 900 Neuroscience Seminar: Current Topics in Neurobiology), which meets weekly and is attended by neuroscience students and faculty. During an academic year, members of the program choose six topics in current neuroscience research for consideration. Topics are reviewed intensively in study groups supervised by faculty sponsors. Critical summaries of each topic are then presented by students to participants in the seminar as a series of lectures and discussions. Each three- to four-week topic session concludes with a lecture by an outside invited speaker who is well known for his or her research in the topic area. In the course of every three- to four-year period, most of the major research areas in neuroscience are reviewed in the neuroscience seminar; consequently, students become familiar with the breadth of contemporary neuroscience.

The average time taken by students to complete the Ph.D. degree is five years. The program prepares students for careers primarily in research and teaching in universities and colleges and careers outside of academia. Of the more than 200 students who have earned the Ph.D. degree in the program, more than 95 percent have careers in biomedical science.

## NEUROSCIENCE & PUBLIC POLICY PROGRAM

The neuroscience & public policy program (N&PP) offers three integrated degree tracks with the cooperation of the neuroscience training program, the La Follette School of Public Affairs and the University of Wisconsin-Madison Law School. The N&PP is based on two strongly held beliefs: first, that sound science and technology policy and law are essential for the well-being of societies; second, that a step toward ensuring such policy is to train future scientists in the making of public policy or the law and prepare them to participate in bringing science and society closer together.

The program offers students the opportunity to earn a Ph.D. degree in neuroscience as well as a master of public affairs (MPA), a master of international public affairs (MIPA), or juris doctorate (J.D.). In each of the degree tracks, the program brings together faculty from neuroscience, public policy, bioethics, sociology, and law and other related fields to train research neuroscientists who will be qualified to help shape public policy or the law. The cross-disciplinary training combines didactic and laboratory research training in neuroscience with a classroom-based and hands-on education in public policy or the law.

For more information about the double and dual degree tracks offered through the neuroscience & public policy program including admissions and program requirements please visit the program website (<http://ntp.neuroscience.wisc.edu/npp.htm>).

## FUNDING

Each student receives a stipend that covers tuition, fees, living costs, and health insurance and is guaranteed for five years if progress is satisfactory. Financial support is provided from the program's NIH training grant, fellowships, and faculty research grants. Limited support is available for international students.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval credits from former graduate institutions may be allowed to count toward degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval credits from graduate-level courses (numbered 300 or above) taken as an undergraduate at UW-Madison may be allowed to count toward degree up to 7 credits. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, coursework numbered 300 or above taken as a UW-Madison Special student may be allowed to count toward the degree up to 15 credits. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

12 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Candidates must satisfactorily complete one year of coursework that covers molecular, cellular, and integrative neurobiology. Enrollment in at least 2 credits of NTP 900 Neuroscience Seminar: Current Topics in Neurobiology is required.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA Required

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Candidates must select the advisory committee by the end of the second semester of the first year of graduate study.

### ASSESSMENTS AND EXAMINATIONS

A research paper or presentation based on at least one year of laboratory research must be submitted to the advisory committee.

### TIME CONSTRAINTS

Master's degree students who are absent for five or more years will not be given credit for prior work.

### LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D. (p. 554)

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will develop the knowledge base necessary for a career as an independent, professional scientist.
- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in neuroscience.
- Identifies sources and assembles evidence pertaining to questions or challenges in neuroscience.
- Demonstrates understanding of the primary field of neuroscience in a historical, social or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in neuroscience.
- Communicates clearly in ways appropriate to the field of neuroscience.

### PROFESSIONAL CONDUCT

- Students will receive training in responsible conduct of research, and will learn and foster principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professor Mary Halloran (director). For a comprehensive faculty list, visit the program website (<http://ntp.neuroscience.wisc.edu/faculty-research.htm>).

## NEUROSCIENCE, PH.D.

**Administrative Unit:** Neuroscience Training Program  
**College/School:** School of Medicine and Public Health  
**Admitting Plans:** Ph.D.  
**Degrees Offered:** M.S., Ph.D.  
**Minors and Certificates:** Doctoral Minor

The neuroscience training program (NTP) was established in 1971. Currently, it comprises over 100 faculty members whose research interests range from molecular neurobiology to integrative systems. The program is designed to prepare students for careers in research and teaching. On average the number of students in the program is approximately 50, half of whom are women. The program is best suited for students who are independent and wish to take a direct role in determining their graduate education. Training leads to the Ph.D. degree in neuroscience or the M.D./Ph.D. degree in cooperation with the School of Medicine and Public Health.

The doctoral program of each graduate student in the training program is tailored to meet individual needs. Each student's program is supervised by an advisory committee of five faculty members selected by the

student in consultation with the major professor. During the first year students complete three laboratory rotations and take one-semester courses in molecular/cellular neuroscience and systems neuroscience. Students also take one upper-level course in molecular/cellular and systems neuroscience. Additional advanced courses may be taken to complement individual research interests.

A preliminary examination is required of all Ph.D. degree candidates at the end of the second year of graduate study. The examination consists of two written papers that are presented orally to the student's advisory committee. The first paper is a critical evaluation of a research topic outside the student's major area of interest. The second paper is a thesis research proposal. Additional requirements for the Ph.D. degree are attendance at the weekly neuroscience seminar and completion of one semester of teaching.

The central forum for intellectual exchange in the program is the neuroscience seminar (NTP 900 Neuroscience Seminar: Current Topics in Neurobiology), which meets weekly and is attended by neuroscience students and faculty. During an academic year, members of the program choose six topics in current neuroscience research for consideration. Topics are reviewed intensively in study groups supervised by faculty sponsors. Critical summaries of each topic are then presented by students to participants in the seminar as a series of lectures and discussions. Each three- to four-week topic session concludes with a lecture by an outside invited speaker who is well known for his or her research in the topic area. In the course of every three- to four-year period, most of the major research areas in neuroscience are reviewed in the neuroscience seminar; consequently, students become familiar with the breadth of contemporary neuroscience.

The average time taken by students to complete the Ph.D. degree is five years. The program prepares students for careers primarily in research and teaching in universities and colleges and careers outside of academia. Of the more than 200 students who have earned the Ph.D. degree in the program, more than 95 percent have careers in biomedical science.

## NEUROSCIENCE & PUBLIC POLICY PROGRAM

The neuroscience & public policy program (N&PP) offers three integrated degree tracks with the cooperation of the neuroscience training program, the La Follette School of Public Affairs and the University of Wisconsin-Madison Law School. The N&PP is based on two strongly held beliefs: first, that sound science and technology policy and law are essential for the well-being of societies; second, that a step toward ensuring such policy is to train future scientists in the making of public policy or the law and prepare them to participate in bringing science and society closer together.

The program offers students the opportunity to earn a Ph.D. degree in neuroscience as well as a master of public affairs (MPA), a master of international public affairs (MIPA), or juris doctorate (J.D.). In each of the degree tracks, the program brings together faculty from neuroscience, public policy, bioethics, sociology, and law and other related fields to train research neuroscientists who will be qualified to help shape public policy or the law. The cross-disciplinary training combines didactic and laboratory research training in neuroscience with a classroom-based and hands-on education in public policy or the law.

For more information about the double and dual degree tracks offered through the neuroscience & public policy program including admissions



and program requirements please visit the program website (<http://ntp.neuroscience.wisc.edu/npp.htm>).

## FUNDING

Each student receives a stipend that covers tuition, fees, living costs, and health insurance and is guaranteed for five years if progress is satisfactory. Financial support is provided from the program's NIH training grant, fellowships, and faculty research grants. Limited support is available for international students.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval credits from former graduate institutions may be allowed to count toward degree. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval credits from graduate level courses (numbered 300 or above) taken as an undergraduate at UW-Madison may be allowed to count toward degree up to 7 credits. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, coursework numbered 300 or above taken as a UW-Madison Special student may be allowed to count toward the degree up to 15 credits. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

12 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Enrollment for NTP 900 Neuroscience Seminar: Current Topics in Neurobiology each semester; NTP/PHMCOL-M/PHYSIOL 610 Cellular and Molecular Neuroscience Cellular and Molecular Neuroscience; NTP/ANATOMY/PHMCOL-M/PHYSIOL/PSYCH 611 Systems Neuroscience Systems Neuroscience; NTP/PHYSIOL 700 Professional Development for Biomedical Graduate Students Professional Development; one intermediate/advanced course in molecular/cellular/developmental neuroscience; one intermediate/advanced course in systems/behavioral neuroscience; and other advanced courses as recommended by the advisory committee.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Completion of a doctoral minor is not required of students in the NTP doctoral program.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA Required

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

Failure to pass the preliminary examination before the start of the spring semester of the third year will result in being placed on probation. Two consecutive semesters of enrollment on probation precludes continuation in the program.

### ADVISOR / COMMITTEE

Candidates must select the advisory committee by the end of the second semester of the first year of graduate study.

### ASSESSMENTS AND EXAMINATIONS

Candidates must meet with their advisory committee once per semester until they become a dissertator and then once per year thereafter.

The preliminary examination consists of two papers: a dissertation proposal, and a critical research paper unrelated to the proposal. The preliminary examination should be completed by the end of the second summer of graduate study. Students who fail one or both parts of the preliminary examination may retake the examination within two months. Failure to pass the examination the second time will result in dismissal from the program.

The final dissertation must be submitted to the advisory committee and an oral defense of the thesis must be given. The thesis defense consists of a public presentation of the thesis followed by a closed meeting with the advisory committee. Deposit of the doctoral dissertation in the Graduate School is required.

### TIME CONSTRAINTS

The final dissertation must be completed by the end of the fifth academic year. If the dissertation is not completed by the end of the summer following the sixth academic year, the student's advisory committee

must meet with the steering committee to present a written statement explaining why the dissertation has not been completed.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The admissions deadline for the neuroscience training program is December 1<sup>st</sup>; no exceptions will be made for late materials so we strongly encourage prospective applicants to send in required materials as early as possible. Admission to the program is based mainly on demonstrated ability and interest in science and mathematics. The minimum course prerequisites are mathematics through calculus and a year each of chemistry, physics, and biology. All course prerequisites must be taken at the college level. Applicants for admission must submit all undergraduate and graduate transcripts directly to the neuroscience training program, three letters of recommendation, scores from the GRE general test, and a statement of research interests and goals. Prior laboratory research experience, though not required, is a component of successful applications.

For more information about neuroscience training program admissions, see the admissions tab on the program website (<http://ntp.neuroscience.wisc.edu/admissions.htm>).

Prospective international students should visit the program website (<http://ntp.neuroscience.wisc.edu/admissions-international.htm>) for more information related to international admissions.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will develop the knowledge base necessary for a career as an independent, professional scientist.
- Students will demonstrate an in-depth understanding of the current knowledge, research questions, research findings and methodologies within their specific field of neuroscience.
- Students will acquire breadth of knowledge in several areas of neuroscience through directed reading and participation in seminar subgroups.
- Students will develop critical thinking skills. They will evaluate the scientific literature, evaluate evidence for and against hypotheses, identify knowledge gaps, identify strengths and weaknesses in existing literature, synthesis knowledge, and develop conclusions.

### RESEARCH

- Students will develop and complete original research that advances their specific area of neuroscience.
- Students will formulate ideas, concepts, and experimental design beyond the current boundaries of neuroscience knowledge.
- Students will evaluate and interpret professional scientific literature and use this information to develop theoretical frameworks, testable hypotheses, and predictions for their own research projects.
- Students will receive training and experience with leading edge technologies currently driving the neuroscience field.
- Students will design research projects and prepare necessary protocols.

- Students will conduct independent research and analyze and interpret resulting data.
- Students will prepare and submit manuscripts resulting from their independent research for publication in professional, peer-reviewed journals.

## COMMUNICATION

- Students will learn to effectively communicate to diverse audiences through writing, oral presentations, and discussions.
- Students will write clear and concise research articles for publication in professional, peer-reviewed journals.
- Students will present their research at scientific conferences and in formal and informal seminars.
- Students will learn methods of communication needed to interact with professional colleagues and to request grant support.
- Students will present research articulately and informatively to diverse audiences.
- Students will have with opportunities to engage in public outreach and education.

## TEACHING

- Students will learn teaching and mentoring skills necessary for future scientific careers.
- Students will receive training and serve as teaching assistants for an approved course or outreach program.
- Students will have opportunities to mentor others in a laboratory or research setting.

## PROFESSIONAL CONDUCT LEARNING GOALS

- Students will receive training in responsible conduct of research, and will learn and foster principles of ethical and professional conduct.
- Students will learn to use scientific rigor when designing experiments, collecting and analyzing data, interpreting and reporting results.
- Students will be trained in the ethics of publishing.
- Students will know and adhere to laws, regulations, occupational health and safety standards.

## ADDITIONAL LEARNING GOALS

### CAREER PREPARATION

- Students will be provided with diverse training that will prepare them for a range of flexible and sustainable careers (e.g., academia, industry, government, science policy and administration, science commerce, science writing, law, and science education and outreach at all levels).
- Students will develop broadly applicable skills in critical thinking and problem solving.
- Students will have opportunities to develop skills in leadership, project management, teamwork, and communication and to develop collaborations with nonacademic partners.

## PEOPLE

**Faculty:** Professor Mary Halloran (director). For a comprehensive faculty list, visit the program website (<http://ntp.neuroscience.wisc.edu/faculty-research.htm>).

## PHYSIOLOGY, DOCTORAL MINOR

## PHYSIOLOGY, M.S.

**Administrative Unit:** Basic Research, Biotechnology and Graduate Studies

**College/School:** School of Medicine and Public Health

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The physiology graduate training program is interdisciplinary in its approach to scientific research, reflecting the breadth of the discipline of physiology. Powerful new tools in modern biology make it possible to link the cellular and molecular with integrative levels in physiological systems, the cardiovascular, respiratory, renal, endocrine, neurophysiological, gastrointestinal, musculoskeletal, and metabolic systems. The program provides doctoral training in mechanistic studies that use these new tools to study the functions of molecules, cells, tissues, and organ systems in preparation for careers in biomedical research, biotechnology, and academic teaching. Students learn through lecture courses, seminar courses, seminars by speakers from campus and from other institutions, journal clubs and, most important, from their research mentors. Students are encouraged to interact with other training programs and research centers to broaden their knowledge and experience. Gaining expertise in public speaking is an important component of the program.

## FUNDING

Financial aid is provided to all students, usually in the form of grant-supported research assistantships, institutional fellowships, teaching assistantships, or advanced opportunity fellowships for minority or disadvantaged students. Students are encouraged to contact individual professors in their areas of interest to determine whether support is available for working in that lab.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half (16 credits of the required 30) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Courses taken that fulfill the equivalent requirements may be considered to exempt a class:

If demonstrated didactic knowledge of physiology, then PHYSIOL 435 Fundamentals of Human Physiology may be exempted.

If considerable background in neuroscience, then NTP/PHMCOL-M/PHYSIOL 610 Cellular and Molecular Neuroscience may be exempted.

Statistics courses may be considered by the student's advisory committee for exemption; however, students are still strongly encouraged to participate.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 30 credits for the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Courses taken that fulfill the equivalent requirements may be considered to exempt a class:

If demonstrated didactic knowledge of physiology, then PHYSIOL 435 may be exempted.

If considerable background in neuroscience, then NTP/PHMCOL-M/PHYSIOL 610 may be exempted.

Statistics courses may be considered by the student's advisory committee for exemption; however, students are still strongly encouraged to participate.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 30 credits for the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Courses taken that fulfill the equivalent requirements may be considered to exempt a class:

If demonstrated didactic knowledge of physiology, then PHYSIOL 435 may be exempted.

If considerable background in neuroscience, then NTP/PHMCOL-M/PHYSIOL 610 may be exempted.

Statistics courses may be considered by the student's advisory committee for exemption; however, students are still strongly encouraged to participate.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 30 credits for the degree.

**CREDITS PER TERM ALLOWED**

12 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

Physiology core curriculum includes:

Code	Title	Credits
PHYSIOL 435	Fundamentals of Human Physiology (or equivalent)	5
STAT/F&W ECOL/ HORT 571	Statistical Methods for Bioscience I	4
or ONCOLOGY 675	Advanced or Special Topics in Cancer Research	
NTP/PHMCOL-M/ PHYSIOL 610	Cellular and Molecular Neuroscience	4
NTP/PHYSIOL 700	Professional Development for Biomedical Graduate Students	1
PHYSIOL 901	Seminar	1

**OVERALL GRADUATE GPA REQUIREMENT**

3.00

**OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

**PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

**ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

**ASSESSMENT AND EXAMINATIONS**

Contact the program for information on required assessments and examinations.

**TIME CONSTRAINTS**

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

**LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

**ADMISSIONS**

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D. (p. 558)

**LEARNING OUTCOMES****KNOWLEDGE AND SKILLS**

- Students will be able to teach physiology, engaging audiences and helping them to learn.
- Students will demonstrate a didactic knowledge of physiology.
- Students will be able to describe past science, propose future experiments, and defend their ideas to peers in a proposal format.
- Students will be able to write for a proper audience, revising and responding to reviewers as appropriate.
- Students will be able to verbally communicate their science and do so in a clear manner for a variety of audiences.

**PROFESSIONAL CONDUCT**

- Students will understand that science and research is based on trust –trust between scientists and colleagues, trust between scientists and policy makers, trust between scientists and advisory boards, and trust between scientists and society.

**PEOPLE**

**Faculty:** See faculty list (<http://pgtp.wisc.edu/faculty>) on the program website.

**PHYSIOLOGY, PH.D.**

**Administrative Unit:** Basic Research, Biotechnology and Graduate Studies

**College/School:** School of Medicine and Public Health

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The physiology graduate training program is interdisciplinary in its approach to scientific research, reflecting the breadth of the discipline of physiology. Powerful new tools in modern biology make it possible to link the cellular and molecular with integrative levels in physiological systems, the cardiovascular, respiratory, renal, endocrine, neurophysiological, gastrointestinal, musculoskeletal, and metabolic systems. The program provides doctoral training in mechanistic studies that use these new tools to study the functions of molecules, cells, tissues, and organ systems in preparation for careers in biomedical research, biotechnology, and academic teaching. Students learn through lecture courses, seminar courses, seminars by speakers from campus and from other institutions, journal clubs and, most important, from their research mentors. Students are encouraged to interact with other training programs and research centers to broaden their knowledge

and experience. Gaining expertise in public speaking is an important component of the program.

## FUNDING

Financial aid is provided to all students, usually in the form of grant-supported research assistantships, institutional fellowships, teaching assistantships, or advanced opportunity fellowships for minority or disadvantaged students. Students are encouraged to contact individual professors in their areas of interest to determine whether support is available for working in that lab.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half (26 credits of the required 51) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Courses taken that fulfill the equivalent requirements may be considered to exempt a class:

If demonstrated didactic knowledge of physiology, then PHYSIOL 435 Fundamentals of Human Physiology may be exempted.

If considerable background in neuroscience, then NTP/PHMCO-M/PHYSIOL 610 Cellular and Molecular Neuroscience may be exempted.

Statistics courses may be considered by the student's advisory committee for exemption; however, students are still strongly encouraged to participate.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 51 credits for the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Courses taken that fulfill the equivalent requirements may be considered to exempt a class:

If demonstrated didactic knowledge of physiology, then PHYSIOL 435 may be exempted.

If considerable background in neuroscience, then NTP/PHMCO-M/PHYSIOL 610 may be exempted.

Statistics courses may be considered by the student's advisory committee for exemption; however, students are still strongly encouraged to participate.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 51 credits for the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

Courses taken that fulfill the equivalent requirements may be considered to exempt a class:

If demonstrated didactic knowledge of physiology, then PHYSIOL 435 may be exempted.

If considerable background in neuroscience, then NTP/PHMCO-M/PHYSIOL 610 may be exempted.

Statistics courses may be considered by the student's advisory committee for exemption; however, students are still strongly encouraged to participate.

These exemptions do not waive a student from any credits, merely from taking the courses. The student will still need to accumulate 51 credits for the degree.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Physiology core curriculum includes:

Code	Title	Credits
PHYSIOL 435	Fundamentals of Human Physiology (or equivalent)	5
STAT/F&W ECOL/ HORT 571	Statistical Methods for Bioscience I	4
or ONCOLOGY 675	Advanced or Special Topics in Cancer Research	
NTP/PHMCO-M/ PHYSIOL 610	Cellular and Molecular Neuroscience	4
NTP/PHYSIOL 700	Professional Development for Biomedical Graduate Students	1
PHYSIOL 901	Seminar	1

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Given the interdisciplinary nature of physiology, students from a variety of undergraduate backgrounds qualify for admission to the program. Entering students generally have degrees in biology, chemistry, physics or engineering, and have usually taken courses in biology, biochemistry, chemistry, mathematics, and physics. Students may be admitted to the program without having completed one or more of these courses but will be required to take them in their first year of graduate school. In addition to the online application, applicants for admission should submit official transcripts from each previous undergraduate and

postgraduate institution; three letters of recommendation; a one-page personal statement describing research experience and personal goals, and indicating faculty with research activities of interest to the student. Graduate Record Exam (GRE) scores are requested from all students. International students should also send scores of the Test of English as a Foreign Language (TOEFL), or International English Language Testing System (IELTS).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will be able to teach physiology, engaging audiences and helping them to learn.
- Students will demonstrate a didactic knowledge of physiology.
- Students will be able to describe past science, propose future experiments, and defend their ideas to peers in a proposal format.
- Students will be able to write for a proper audience, revising and responding to reviewers as appropriate.
- Students will be able to verbally communicate their science and do so in a clear manner for a variety of audiences.

### PROFESSIONAL CONDUCT

- Students will understand that science and research is based on trust – trust between scientists and colleagues, trust between scientists and policy makers, trust between scientists and advisory boards, and trust between scientists and society.

## PEOPLE

**Faculty:** See faculty list (<http://pgtp.wisc.edu/faculty>) on the program website.

# MOLECULAR AND CELLULAR PHARMACOLOGY

**Administrative Unit:** Molecular and Cellular Pharmacology Graduate Training Program

**College/School:** School of Medicine and Public Health

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The molecular and cellular pharmacology (MCP) program, in cooperation with the Center for Training in Pharmacology and Drug Development (CTPDD), offers interdisciplinary graduate training in the field of molecular and cellular pharmacology. The primary emphasis is doctoral training in molecular biology, biochemistry, genetics, and cell biology with a focus on integrating these methodologies with modern pharmacology. Other related degree programs under the direction of program faculty are cellular and molecular biology, environmental toxicology, neuroscience, biomolecular chemistry, and genetics.

The MCP program emphasizes study of the basic molecular and cellular mechanisms involved in the regulation of cellular events and cellular signal transduction mechanisms and the interaction of hormones, drugs, and chemicals with living systems. The faculty provides expertise in such challenging areas as the molecular events related to neurotransmitter receptor G-protein effector signaling; molecular structure of neurotransmitter receptors; genetic approaches to mechanisms for elucidating synaptic transmission; molecular mechanisms of action drugs of abuse and neurotransmitter transporters; phosphoinositide-generated second messengers and their regulation of membrane protein function and cell growth; regulation of tissue-specific gene transcription; molecular mechanisms of erythropoiesis; molecular mechanisms of leukemogenesis; regulation of hormone and neurotransmitter release; mechanism of action of polypeptide hormones; peptide-hormone receptors; control of steroid synthesis; induction of drug-metabolizing enzymes; chemical initiation and prevention of cancer; mechanisms and regulation of antibiotic action and resistance. Aside from providing insight into drug action, studies in pharmacology have led to important advances in our understanding of fundamental biological processes.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Molecular and Cellular Pharmacology, Ph.D. (p. 559)

## PEOPLE

**Faculty:** Professors Anderson, Auger, Beebe, Bement, Bresnick, Chapman, Cryns, Czajkowski, Denu, Greenspan, Hardin, Hayney, Huttenlocher, Jackson, Jefcoate, Johnson, Kalejta, Kamp, Keck, Keely, Kimble, Kolesar, Kwon, Li, Martin, Miyamoto, Mosher, Murphy, Raines, Rapraeger, Schuler, Sheibani, Svaren, Thomson, Tibbetts, Wassarman, Xu, Yang, Zhang, Zhao; Associate Professors Audhya (director), Balijepalli, Burkard, Buxton, Chanda, Chang, Ge, Hornberger, Jorgensen, Kuo, Kalejta, Lee, Masters, Pagliarini, Roopra, Striker, Tang, Weaver, Wheeler, Xing; Assistant

Professors, Blum, Collier, Jiang, Johannsen, M. Kimple, R. Kimple, Kreeger, Lamming, Lou, Rui, Saha, Sherer, Sridharan

## MOLECULAR AND CELLULAR PHARMACOLOGY, PH.D.

The molecular and cellular pharmacology (MCP) program, in cooperation with the Center for Training in Pharmacology and Drug Development (CTPDD), offers interdisciplinary graduate training in the field of molecular and cellular pharmacology. The primary emphasis is doctoral training in molecular biology, biochemistry, genetics, and cell biology with a focus on integrating these methodologies with modern pharmacology. Other related degree programs under the direction of program faculty are cellular and molecular biology, environmental toxicology, neuroscience, biomolecular chemistry, and genetics.

The MCP program emphasizes study of the basic molecular and cellular mechanisms involved in the regulation of cellular events and cellular signal transduction mechanisms and the interaction of hormones, drugs, and chemicals with living systems. The faculty provides expertise in such challenging areas as the molecular events related to neurotransmitter receptor G-protein effector signaling; molecular structure of neurotransmitter receptors; genetic approaches to mechanisms for elucidating synaptic transmission; molecular mechanisms of action drugs of abuse and neurotransmitter transporters; phosphoinositide-generated second messengers and their regulation of membrane protein function and cell growth; regulation of tissue-specific gene transcription; molecular mechanisms of erythropoiesis; molecular mechanisms of leukemogenesis; regulation of hormone and neurotransmitter release; mechanism of action of polypeptide hormones; peptide-hormone receptors; control of steroid synthesis; induction of drug-metabolizing enzymes; chemical initiation and prevention of cancer; mechanisms and regulation of antibiotic action and resistance. Aside from providing insight into drug action, studies in pharmacology have led to important advances in our understanding of fundamental biological processes.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the degree coursework (26 of 51 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 7 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students are not required to complete a minor, but may do so if they wish.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.



## PEOPLE

**Faculty:** Professors Anderson, Auger, Beebe, Bement, Bresnick, Chapman, Cryns, Czajkowski, Denu, Greenspan, Hardin, Hayney, Huttenlocher, Jackson, Jefcoate, Johnson, Kalejta, Kamp, Keck, Keely, Kimble, Kolesar, Kwon, Li, Martin, Miyamoto, Mosher, Murphy, Raines, Rapraeger, Schuler, Sheibani, Svaren, Thomson, Tibbetts, Wassarman, Xu, Yang, Zhang, Zhao; Associate Professors Audhya (director), Balijepalli, Burkard, Buxton, Chanda, Chang, Ge, Hornberger, Jorgensen, Kuo, Kalejta, Lee, Masters, Pagliarini, Roopra, Striker, Tang, Weaver, Wheeler, Xing; Assistant Professors, Blum, Collier, Jiang, Johannsen, M. Kimple, R. Kimple, Kreeger, Lamming, Lou, Rui, Saha, Sherer, Sridharan

## NURSING—SCHOOL-WIDE

**Administrative Unit:** School of Nursing

**College/School:** School of Nursing

**Admitting Plans:** DNP, Ph.D.

**Degrees Offered:** M.S., DNP, Ph.D.

**Minors and Certificates:** Doctoral Minor; Nurse Educator, Graduate Professional Certificate

The School of Nursing offers a programs leading to the doctor of philosophy degree and the doctor of nursing practice (DNP). The school also has a unique early entry Ph.D. program to bridge or accelerate progression to the Ph.D. level for undergraduate nursing students. Postdoctoral training opportunities are also available.

The mission of the School of Nursing is to prepare nurse leaders who improve human health through practice, education and research. Our strategic priorities are to advance science through research and scholarship, prepare nurse leaders for the health challenges of the 21st century, foster strategic partnerships to promote human health, achieve the school's commitment to diversity, and create the preferred future of the School of Nursing.

Nursing faculty members are well prepared for their roles as scholars, clinicians, and teachers. Many have postdoctoral experience in nursing and related disciplines. They have wide-ranging clinical expertise foundational to their experiences with doctoral students. Many faculty have been awarded prestigious federal and private research and training awards and are well known for their expertise in university, local, national, and international communities.

World-renowned facilities for clinical practice and research are available in and around Madison. These include University of Wisconsin Hospital and Clinics, American Family Children's Hospital, UW Carbone Cancer Center and William S. Middleton Memorial Veterans Hospital; hospitals and clinics in urban and rural settings; nursing homes; and public health agencies. The University's location in Wisconsin's capital offers opportunities for involvement in state government and policy making.

Signe Skott Cooper Hall, the School of Nursing's new facility, features state-of-the-art classrooms, simulation labs, meeting and research facilities, and social gathering spaces in an environment dedicated to the health and wellness of students, faculty, staff and the communities and populations served. Adjacent to Cooper Hall, the Health Sciences Learning Center (HSLC) brings together students in nursing, medicine, and pharmacy, and includes the Ebling Library and University Book Store.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Nurse Educator, Graduate/Professional Certificate (p. 562)
- Nursing Practice, DNP (p. 562)
- Nursing, Doctoral Minor (p. 564)
- Nursing, M.S. (p. 565)
- Nursing, Ph.D. (p. 566)

## PEOPLE

**Faculty:** Professors May (dean), Bowers, Brennan, Kwekkeboom, Lauver, Oakley, Zahner; Associate Professors Tluczek, Ward; Assistant Professors Bratzke, Gretebeck, King, Roberts, Steege, Torres, Yoon

## NURSE EDUCATOR, GRADUATE/PROFESSIONAL CERTIFICATE

The 9-credit program of study consists of two 3-credit nurse educator courses (NURSING 785 Foundations of Curriculum Development and Evaluation in Nursing Education and NURSING 786 Foundations of Teaching and Learning in Nursing), and a 3-credit teaching practicum experience (NURSING 787 Nursing Education Practicum). The nurse educator courses will be delivered in a hybrid format (primarily online with regularly scheduled in-class sessions).

Those who complete the certificate are recognized for their specialized skills, knowledge, and abilities in the nurse educator role. The certification of nurse educators provides a means for faculty members to demonstrate their expertise in the science of nursing education. Obtaining the certificate signifies a commitment to professional development and to continuously improve the methods of teaching needed in the field of nursing.

Student who complete the certificate are eligible to sit for the National League for Nursing (NLN) Certified Nurse Educator Examination. NLN recognizes the nurse educator role as a specialty area of practice.

## NURSING PRACTICE, DNP

The School of Nursing doctor of nursing practice (DNP) program prepares nurses for leadership roles as advanced practice nurses (clinical nurse specialists or nurse practitioners) who provide direct care and lead practice development and evaluation. Students in the DNP program choose from three population foci: adult/gerontology (acute care or primary care), pediatrics, or psychiatric mental health. Those interested in dual preparation as an advanced practice nurse and nurse educator may add a nursing education focus.

The program is available for nurses with a baccalaureate degree in nursing (post-B.S. option) and nurses with a master's degree in nursing (post-M.S. option). The post-B.S. option can be completed in three years of full-time study or five years on a part-time basis and requires a minimum of 71 credits. The post-M.S. option is designed to be completed in three years on a part-time basis and requires a minimum of 51 credits. Up to 18 credits will be accepted from the student's M.S. degree; a minimum of 32 credits must be completed as a graduate student on the UW–Madison campus. Students admitted to either option follow the course sequence designated in the program plan and progress as a group.

The program of study features a combination of formal course work, clinical practice and scholarly inquiry. Most course work is delivered in a hybrid format, utilizing both in-person class sessions and distance learning technologies.

## FUNDING

Several forms of financial aid are available for graduate students in the School of Nursing. These include fellowships, scholarships, project and teaching assistantships and loans. Most graduate assistantships cover the cost of tuition and provide a monthly stipend. Awards are made in the spring or early summer for the following academic year.

Advanced Opportunity Fellowships are designed to support highly qualified underrepresented students in the doctoral programs. Doctoral students who are preparing to be full-time faculty in nursing programs are also eligible for the Nurse Faculty Loan Program (NFLP). These loans, supported by the federal government, are available to cover tuition and other educational expenses. When graduates become full-time faculty members, up to 85 percent of the NFLP loan will be canceled over a four-year period.

Additional information on financial aid including application procedures is available in the School of Nursing Academic Programs Office.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### DOCTORAL DEGREES

DNP

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

Post-B.S.: 71 credits

Post-M.S.: 51 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

Post-B.S.: 54 credits

Post-M.S.: 32 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the University's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Post-B.S.: With program approval, students are allowed to count up to 18 credits of graduate coursework from other institutions. Graduate work should be less than five years old to be considered; additional justification and/or documentation are needed for work taken between five and ten years. Work more than ten years old will not be considered.

Post-M.S.: With program approval, students are allowed to count up to 18 credits of graduate coursework from other institutions. Graduate work should be less than five years old to be considered; additional

justification and/or documentation are needed for work taken between five and ten years. Work more than ten years old will not be considered unless students are board certified advanced practice nurses (ANP) and have continuous practice as an APN.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No undergraduate coursework will be allowed to count toward DNP requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. These credits are considered part of the total allowable credits available for a student to transfer. Coursework should be less than five years old to be considered; additional justification and/or documentation is needed for work taken between five and ten years. Work more than ten years old will not be considered.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the School for a list of specific courses.

#### DOCTORAL MINOR/BREADTH REQUIREMENTS

DNP students are not required to complete a doctoral minor.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

#### OTHER GRADE REQUIREMENTS

A student may not receive more than one grade below a B (or a U grade) in any 12 month period.

#### PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a student has not returned to satisfactory progress by the determined deadline, a decision about whether the student will be permitted to continue will be made by the graduate programs committee (or appropriate subcommittee) with input from the student's advisor.

#### ADVISOR / COMMITTEE

Progression is reviewed each semester by academic programs office staff and advisors.

#### ASSESSMENTS AND EXAMINATIONS

No examinations are required.

#### TIME CONSTRAINTS

Post-B.S.: Students must complete the requirements within six years of admission. Upon the advisor's recommendation, the associate dean for academic programs may grant a one-year extension.

Post-M.S.: Students must complete the requirements within four years of admission to the program. Upon the advisor's recommendation, the associate dean for academic programs may grant a one-year extension.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

*Admission requirements for the DNP program (post-baccalaureate) are:*

- Bachelor's degree in nursing from an accredited (CCNE or NLN) program with an undergraduate GPA of at least 3.0 (on a 4.0 scale) on the last 60 credits of the most recent baccalaureate degree
- Licensure as a professional nurse with one year of professional nursing experience required, preferably related to the population of interest
- Application essay (see School of Nursing website (<http://www.son.wisc.edu>) for specific criteria)
- Three letters of recommendation
- Curriculum vitae or resume
- English proficiency scores: Applicants whose native language is not English, or whose undergraduate instruction was not in English, must provide an English proficiency test score. Scores are accepted if they are within two years of the start of the admission term. See the Graduate School's Admission Requirements (<http://grad.wisc.edu/admissions/requirements>) for more information on the English proficiency requirement.

*Additional admission requirements for the DNP program (post-master's) are:*

- Cumulative grade point average (GPA) of at least 3.5 (4.0 basis) for the M.S. degree in nursing
- A graduate level statistics course with a grade of B or better completed within five years of application
- Evidence of certification as an advanced practice nurse, if applicable

All application materials must be received by February 1 for admission in the fall semester.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Integrate nursing science with knowledge from the biophysical, psychosocial, analytical, and organizational sciences as the basis for advanced level nursing practice.
- Use information systems technology to evaluate outcomes of care, care systems, and quality improvement.
- Develop and evaluate new practice approaches based on nursing theories and theories from other disciplines.
- Employ consultative and leadership skills with intraprofessional and interprofessional teams to create change in complex health care delivery systems.
- Demonstrate leadership in the development of institutional, local, state, federal, and/or international health policy.
- Function as a practice specialist in collaborative knowledge-generating research.
- Develop, implement, and evaluate interventions to improve health status and access patterns, and to address gaps in care of individuals, aggregates, or populations.
- Design, implement and disseminate results of a scholarly endeavor that uses evidence to improve practice or patient outcomes.

- Employ consultative and leadership skills with intraprofessional and interprofessional teams to create change in complex health care delivery systems.
- Demonstrate advanced levels of clinical judgment, systems thinking, and accountability in designing, delivering, and evaluating evidence-based care to improve patient outcomes.
- Lead the evaluation of evidence to determine and implement best practice.
- Demonstrate leadership in the development of institutional, local, state, federal, and/or international health policy.
- Demonstrate advanced levels of clinical judgment, systems thinking, and accountability in designing, delivering, and evaluating evidence-based care to improve patient outcomes.
- Critically evaluate how social determinants of health, cultural background and physical environment impact health outcomes.
- Communicates complex research findings and implications in a clear and understandable manner to lay and professional audiences.

## PROFESSIONAL CONDUCT

- Guide, mentor, and support other nurses to achieve excellence in clinical nursing practice.
- Function as a practice specialist in collaborative knowledge-generating research.
- Demonstrates knowledge of professional obligations, codes of ethics and institutional policies and procedures that guide nursing scholarship and practice.

## PEOPLE

**Faculty:** Professors May (dean), Bowers, Brennan, Kwekkeboom, Lauer, Oakley, Zahner; Associate Professors Tluczek, Ward; Assistant Professors Bratzke, Gretebeck, King, Roberts, Steege, Torres, Yoon; Clinical Professors Kruger, Pinekenstein, Solheim; Clinical Associate Professors Greene, R. Gretebeck, Williams; Clinical Assistant Professors Bryan, Dwyer, Eisch, Endicott, Fiegel-Newlon, Fisher, Gilmore-Bykovskiy, Halm, Lothe, McGranahan, Newton, Saladar, Sasse, Williams; Clinical Instructors Dachel, Hermsen, Kobernusz

## NURSING, DOCTORAL MINOR

### REQUIREMENTS

The requirements for a Ph.D. candidate from another program for an Option A minor in nursing are 10 credits of graduate-level course work to include at least 6 credits at the 800 level. No more than 4 of the 10 credits may be transfer credits. Any transfer credits from master's-level course work must have been taken within five years of admission to the Ph.D. program.

## PEOPLE

**Faculty:** Professors May (dean), Bowers, Brennan, Kwekkeboom, Lauer, Oakley, Zahner; Associate Professors Tluczek, Ward; Assistant Professors Bratzke, Gretebeck, King, Roberts, Steege, Torres, Yoon

## NURSING, M.S.

The School of Nursing is no longer admitting students to the M.S. program or the M.S./MPH dual degree program. The M.S. program for advanced practice has transitioned to the doctor of nursing practice (DNP) degree (p. 562).

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.S.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

36 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

27 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (18 out of 36 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count up to 9 credits of graduate coursework from other institutions. Graduate work should be less than five years old to be considered; additional justification and/or documentation are needed for work taken between five and ten years. Work ten or more years prior to admission to the program will not be considered.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. These credits are considered part of the total allowable credits available for a student to transfer. Coursework should be less than five years old to be considered; additional justification and/or documentation is needed for work taken between five and ten years. Work ten or more years prior to admission to the program will not be considered.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the School for a list of specific courses.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

#### OTHER GRADE REQUIREMENTS

No other grade requirements.

#### PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

#### ADVISOR / COMMITTEE

Student progression is reviewed annually.

#### ASSESSMENTS AND EXAMINATIONS

No formal examination required.

#### TIME CONSTRAINTS

Requirements for the degree must be completed within five years of admission.

#### LANGUAGE REQUIREMENTS

No language requirements.

### LEARNING OUTCOMES

#### KNOWLEDGE AND SKILLS

- **Background for Practice from Sciences and Humanities:** Recognizes that the master's-prepared nurse integrates scientific findings from nursing, biopsychosocial fields, genetics, public health, quality improvement, and organizational sciences for the continual improvement of nursing care across diverse settings.
- **Organizational and Systems Leadership:** Recognizes that organizational and systems leadership are critical to the promotion of high quality and safe patient care. Leadership skills are needed that emphasize ethical and critical decision making, effective working relationships, and a systems-perspective.
- **Quality Improvement and Safety:** Recognizes that a master's-prepared nurse must be articulate in the methods, tools, performance measures, and standards related to quality, as well as prepared to apply quality principles within an organization.
- **Translating and Integrating Scholarship into Practice:** Recognizes that the master's-prepared nurse applies research outcomes within the practice setting, resolves practice problems, works as a change agent, and disseminates results.
- **Informatics and Healthcare Technologies:** Recognizes that the master's-prepared nurse uses patient-care technologies to deliver and enhance care and uses communication technologies to integrate and coordinate care.

- **Health Policy and Advocacy:** Recognizes that the master's-prepared nurse is able to intervene at the system level through the policy development process and to employ advocacy strategies to influence health and health care.

## PROFESSIONAL CONDUCT

- **Interprofessional Collaboration for Improving Patient and Population Health Outcomes:** Recognizes that the master's-prepared nurse, as a member and leader of interprofessional teams, communicates, collaborates, and consults with other health professionals to manage and coordinate care.
- **Ethical Practice:** Recognizes and applies principles of ethical and professional conduct.

## ADDITIONAL LEARNING GOALS

- **Master's-Level Nursing Practice:** Recognizes that nursing practice, at the master's level, is broadly defined as any form of nursing intervention that influences healthcare outcomes for individuals, populations, or systems. Master's-level nursing graduates must have an advanced level of understanding of nursing and relevant sciences as well as the ability to integrate this knowledge into practice. Nursing practice interventions include both direct and indirect care components.
- **Clinical Prevention and Population Health for Improving Health:** Recognizes that the master's-prepared nurse applies and integrates broad, organizational, client-centered, and culturally appropriate concepts in the planning, delivery, management, and evaluation of evidence-based clinical prevention and population care and services to individuals, families, and aggregates/identified populations.

## PEOPLE

**Faculty:** Professors May (dean), Bowers, Brennan, Kwekkeboom, Lauer, Oakley, Zahner; Associate Professors Tluczek, Ward; Assistant Professors Bratzke, Gretebeck, King, Roberts, Steege, Torres, Yoon

## NURSING, PH.D.

The emphasis on theory and practice of nursing prepares nurse scientists to: develop and/or test theory that drives nursing practice; design and conduct clinical efficacy and effectiveness trials of nursing interventions to improve health; and build a program of research around a clinical problem, phenomenon, or population of interest that will shape patient care across various settings. The emphasis on policy and leadership prepares nurse scientists with the conceptual strategies and methodological skills to assess and address the biobehavioral, social and economic public policy factors that influence the definition of what constitutes health problems and the manner in which they are treated.

The School of Nursing offers a program leading to the doctor of philosophy degree. The school also has a unique early entry Ph.D. program to bridge or accelerate progression to the Ph.D. level for undergraduate nursing students. Postdoctoral training opportunities are also available.

The mission of the School of Nursing is to prepare nurse leaders who improve human health through practice, education and research. Our strategic priorities are to advance science through research and scholarship, prepare nurse leaders for the health challenges of the 21st

century, foster strategic partnerships to promote human health, achieve the school's commitment to diversity, and create the preferred future of the School of Nursing.

Nursing faculty members are well prepared for their roles as scholars, clinicians, and teachers. Many have postdoctoral experience in nursing and related disciplines. They have wide-ranging clinical expertise foundational to their experiences with doctoral students. Many faculty have been awarded prestigious federal and private research and training awards and are well known for their expertise in university, local, national, and international communities.

World-renowned facilities for clinical practice and research are available in and around Madison. These include University of Wisconsin Hospital and Clinics, American Family Children's Hospital, UW Carbone Cancer Center and William S. Middleton Memorial Veterans Hospital; hospitals and clinics in urban and rural settings; nursing homes; and public health agencies. The University's location in Wisconsin's capital offers opportunities for involvement in state government and policy making.

Signe Skott Cooper Hall, the School of Nursing's new facility, features state-of-the-art classrooms, simulation labs, meeting and research facilities, and social gathering spaces in an environment dedicated to the health and wellness of students, faculty, staff and the communities and populations served. Adjacent to Cooper Hall, the Health Sciences Learning Center (HSLC) brings together students in nursing, medicine, and pharmacy, and includes the Ebling Library and University Book Store.

## EARLY ENTRY PH.D. OPTION

The early-entry Ph.D. option is designed for undergraduate students who are interested in research as a career and the Ph.D. as a goal. With the assistance of a faculty advisory committee, early entry students plan an individualized program of study and research, drawing on existing undergraduate and graduate courses in nursing and related disciplines. Two degrees are awarded to students who complete this option: bachelor of science in nursing (B.S.), granted by the School of Nursing, and doctor of philosophy (Ph.D.), granted by the Graduate School.

## DOCTOR OF PHILOSOPHY DEGREE

The purpose of the Ph.D. program is to prepare researchers to develop, evaluate and disseminate new knowledge in nursing and health science. The program is characterized by early and continuous training in research through a close mentoring relationship with faculty, a strong scientific base in nursing, and supporting courses in a related (i.e., minor) discipline. Graduates with a research doctorate are prepared to assume positions as faculty as well as research scientists and research directors in a variety of educational, clinical and governmental settings.

The program is designed to be completed in four years full time and requires a minimum of 52 credits. Students may be accepted into the Ph.D. program either post-baccalaureate or post-master's. Students are encouraged to enroll full-time. If part-time study is necessary, a minimum of 6 credits per semester is required.

In collaboration with the faculty mentor(s), students plan a course of study that constitutes a unified program and fulfills the program requirements. Students select an emphasis in

1. theory and practice of nursing
2. policy and leadership.

The emphasis on theory and practice of nursing prepares nurse scientists to: develop and/or test theory that drives nursing practice; design and conduct clinical efficacy and effectiveness trials of nursing interventions to improve health; and build a program of research around a clinical problem, phenomenon, or population of interest that will shape patient care across various settings. The emphasis on policy and leadership prepares nurse scientists with the conceptual strategies and methodological skills to assess and address the biobehavioral, social and economic public policy factors that influence the definition of what constitutes health problems and the manner in which they are treated.

## FUNDING

Several forms of financial aid are available for graduate students in the School of Nursing. These include fellowships, traineeships, scholarships, research, project and teaching assistantships, and loans. Most graduate assistantships cover the cost of tuition and provide a monthly stipend. Awards are made in the spring or early summer for the following academic year. Full-time Ph.D. students receive priority for teaching and research assistantships administered by the School of Nursing. Students in the Ph.D. program have also been successful in competing for federal National Research Service Awards (NRSA) which are individual predoctoral fellowships.

Advanced Opportunity Fellowships are designed to support highly qualified underrepresented students in the doctoral programs. Doctoral students who are preparing to be full-time faculty in nursing programs are also eligible for the Nurse Faculty Loan Program (NFLP). These loans, supported by the federal government, are available to cover tuition and other educational expenses. When graduates become full-time faculty members up to 85% of the NFLP loan will be canceled over a four-year period.

Additional information on financial aid including application procedures is available in the School of Nursing Academic Programs Office.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

52 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 out of 52 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework

attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 18 credits of graduate coursework from other institutions. Graduate work should be less than five years old to be considered; additional justification and/or documentation are needed for work taken between five and ten years. Work ten or more years prior to admission to the program will not be considered.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval up to 7 credits numbered 300 or above will be allowed to count toward the Ph.D. degree. This applies to students in the Early Entry Ph.D. route in the School of Nursing.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. These credits are considered part of the total allowable credits available for a student to transfer. Coursework should be less than five years old to be considered; additional justification and/or documentation is needed for work taken between five and ten years. Work ten or more years prior to admission to the program will not be considered.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the School for a list of specific courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

All Ph.D. students are required to complete a minor.

Overall Graduate GPA Requirement

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

A student may not receive more than one grade below a B (or a U grade) in any 12 month period.

### PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a student has not returned to satisfactory progress by the determined deadline, a decision about whether the student will be permitted to continue will be made by the graduate programs committee (or appropriate subcommittee) with input from the student's advisor.

### ADVISOR / COMMITTEE

Ph.D. students complete an annual progression review which includes a written review from the advisor. This is submitted to the Ph.D. Admission, Progression and Funding (APF) Subcommittee of the GPC. APF reviews the student CVs and advisor comments to gain an overall sense of student progression in the program. Comments from the APF regarding progression are then sent to the advisor who shares the result of the

review with the student. (See Policy and Procedures for PhD Progression Reviews.)

## ASSESSMENTS AND EXAMINATIONS

To be eligible for the comprehensive candidacy examination, candidates must have completed all formal coursework requirements.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

*Admission requirements for the Ph.D. program are:*

- Bachelor's degree in nursing from an accredited (CCNE or NLN) program with an undergraduate GPA of at least 3.0 (on a 4.0 scale) on the last 60 credits of the most recent baccalaureate degree
- Satisfactory scores on the Graduate Record Examination (GRE)
- Application essay (see School of Nursing website for specific criteria)
- Satisfactory academic references
- Copies of two original papers or other scholarly work
- Curriculum vitae or resume
- English proficiency scores: Applicants whose native language is not English, or whose undergraduate instruction was not in English, must provide an English proficiency test score. Scores are accepted if they are within two years of the start of the admission term. See <https://grad.wisc.edu/catalog/admission.htm> the Graduate School's Requirements for Admission (<http://grad.wisc.edu/admissions/requirements>) for more information on the English proficiency requirement.

Applications should be submitted for priority consideration by December 1 for admission in the fall semester.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Masters in-depth knowledge in a substantive area of nursing.
- Articulates research problems, potentials and limits with respect to nursing theory, knowledge, and practice.
- Formulates new ideas, concepts, designs, and/or techniques based on critical evaluation of knowledge in nursing and other relevant disciplines.
- Assumes leadership in the creation of original research that makes a substantive contribution to health.
- Demonstrates cultural knowledge and cross-cultural skills in nursing scholarship.
- Demonstrates breadth in learning experiences through intra- and cross-disciplinary study, and integration of research, teaching, mentoring, and service to the profession.
- Negotiates and works successfully with interprofessional teams.

- Develops and disseminates nursing knowledge to meet the health needs of local, national, and global populations.
- Communicates complex research findings and implications in a clear and understandable manner to lay and professional audiences.

## PROFESSIONAL CONDUCT

- Demonstrates knowledge of professional obligations, codes of ethics, and institutional policies and procedures that guide nursing scholarship.
- Demonstrates the capacity to identify ethical issues, seek guidance from appropriate resources and adhere to ethical principles and professional norms in the resolution of moral dilemmas.

## PEOPLE

**Faculty:** Professors May (dean), Bowers, Brennan, Kwekkeboom, Lauver, Oakley, Zahner; Associate Professors Tluczek, Ward; Assistant Professors Bratzke, Gretebeck, King, Roberts, Steege, Torres, Yoon



# NUTRITIONAL SCIENCES

**Administrative Unit:** Nutritional Sciences  
**College/School:** College of Agricultural and Life Sciences  
**Admitting Plans:** M.S., Ph.D.  
**Degrees Offered:** M.S., Ph.D.  
**Minors and Certificates:** Doctoral Minor

Modern nutrition is a multidisciplinary, integrative science, and the Interdepartmental Graduate Program in Nutritional Sciences (IGPNS) has been developed to meet this diversity in approach and objective. Thus, students can focus their training in one of three emphasis groups:

1. biochemical and molecular nutrition,
2. human nutrition, or
3. animal nutrition.

The degrees offered are the Master of Science and the Doctor of Philosophy in Nutritional Sciences.

It is the program's goal to provide graduate students interested in nutrition with an opportunity to obtain specialized training in a specific research area and also to obtain a general background in the science and practice of nutrition. The program is sufficiently flexible to allow students with a wide variety of undergraduate degrees to meet the background prerequisites. The program draws on the strengths of faculty in a number of the university's colleges and academic departments to enhance the instructional and research experience.

The training objectives of the IGPNS are to provide students with an understanding of basic nutritional principles as they apply to both humans and animals, to provide them with current knowledge in a specific area of emphasis, to make them aware of the integrative and multidisciplinary nature of nutrition research, and to direct them toward a successful career through the thesis and publications.

**Biochemical and molecular nutrition.** This emphasis group focuses on the application of biochemical and physiological approaches to the understanding of nutrient function and metabolism in systems ranging from the whole animal to the molecular level.

**Human nutrition.** This emphasis group takes a comprehensive view of human nutrition with emphasis on the maintenance and promotion of human health. It utilizes diverse research approaches to carry out studies on nutrient requirements, metabolism, and interactions. Research may involve physiological and biochemical studies, animal models and epidemiological, and educational or clinical interventions.

**Animal nutrition.** This emphasis group takes a comprehensive view of animal nutrition with a focus on expanding understanding of nutrient utilization. Research activities involve both the performance of domestic animals and general comparative nutrition across animal species. Studies may range from applied animal feeding trials to basic studies on nutrient metabolism or integrated whole-animal metabolism with an emphasis on quantification and regulation.

Thirty-three students from throughout the world are currently enrolled in the program. Twenty-four are doctoral candidates and nine are seeking master's degrees.

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national awards. They are active in national and international nutrition activities, and serve on editorial boards, as society officers, and as participants in numerous workshops and on advisory committees.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Clinical Nutrition, M.S. (p. 569)
- Nutritional Sciences, Doctoral Minor (p. 571)
- Nutritional Sciences, M.S. (p. 571)
- Nutritional Sciences, Ph.D. (p. 574)

## PEOPLE

**Faculty:** Professors Eide (chair), Eisenstein, Groblewski, Lai, Ney, Ntambi, Smith, Sunde, Tanumihardjo; Associate Professors Olson, Yen; Assistant Professor Parks. Members of the Interdepartmental Graduate Program in Nutritional Sciences from outside the department: Adams, Anderson, Armentano, Attie, Binkley, Carey, Clagett-Dame, Combs, Cook, Crenshaw, Davis, Denu, Drezner, Engin, Goldman, Hayes, Hernandez, Kanarek, Karasov, Kemnitz, Kimple, Kling, Knoll, Kudsk, Lamming, Mares, Merrins, Pagliarini, Prolla, Reed, Robbins, Schaefer, Simon, White.

## CLINICAL NUTRITION, M.S.

**Administrative Unit:** Nutritional Sciences  
**College/School:** College of Agricultural and Life Sciences  
**Admitting Plans:** M.S.  
**Degrees Offered:** M.S.

The M.S. in clinical nutrition is focused on core nutrition, clinical nutrition, professional skills, and electives (including public health). This is advanced learning at its best, and is ideal for people with a strong background in clinical nutrition, confidence working at the graduate level, and a commitment to become leaders in clinical nutrition and dietetics. The curriculum is designed to prepare students to translate research; recognize and formulate responses to evolving developments in clinical nutrition practice, policy, and research; and lead and manage professional teams to design nutrition-related services.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress in addition to the requirements of the program.

### MASTER'S DEGREES:

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide.

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 5 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between Special and graduate tuition), students are allowed to count no more than 14 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
NUTR SCI 710	Human Energy Metabolism	2
NUTR SCI 711	Personalized Nutrition: Genetics, Genomics, and Metagenomics	1
NUTR SCI 720	Advanced Nutrition Assessment	1
NUTR SCI 650	Advanced Clinical Nutrition: Critical Care and Nutrition Support	3
NUTR SCI 651	Advanced Clinical Nutrition - Pediatrics	3
NUTR SCI 652	Advanced Nutrition Counseling and Education	3
NUTR SCI 653	Clinical Nutrition Research	3
Total Credits		16

In addition, students are required to complete 4 credits of "Professional Skills" from the following:

Code	Title	Credits
Select one of the following:		
E P D 700	Connected Learning Essentials	4
E P D 701	Writing for Professionals	
E P D 702	Professional Presentations	

E P D/L I S 703	Managing Digital Information
E P D/GEN BUS/ M H R 783	Leading Teams
E P D/GEN BUS/ OTM 784	Project Management Essentials
E P D 712	Ethics for Professionals

Total Credits 4

Students are also required to complete 5 credits from the following (Note: A maximum of 3 credits from EPD courses may be used to fulfill this requirement:

Code	Title	Credits
Select a total of 5 credits:		
POP HLTH 780	Public Health: Principles and Practice	5
POP HLTH 785	Health Systems, Management, and Policy	
POP HLTH/ M&ENVTOX 789	Principles of Environmental Health: A Systems Thinking Approach	
POP HLTH 879	Politics of Health Policy	
NUTR SCI 699	Special Problems	
E P D/ACCT I S/ GEN BUS 781	Financial and Business Acumen <sup>1</sup>	
E P D 706	Change Management <sup>1</sup>	
E P D/GEN BUS/ M H R 785	Effective Negotiation Strategies <sup>1</sup>	
E P D/GEN BUS/ MARKETNG 782	Marketing for Non-Marketing Professionals <sup>1</sup>	
E P D 713	Key Legal Concepts for Professionals <sup>1</sup>	
E P D 708	Creating Breakthrough Innovations <sup>1</sup>	
E P D 704	Organizational Communication and Problem Solving <sup>1</sup>	

<sup>1</sup> Any EPD course (700, 701, 702, 703, 783, 784) not used in "4 credits of Professional Skills" requirement above; courses may not count twice.

## Overall Graduate GPA Requirement

3.00

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all core curriculum coursework.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards).
2. Probation (not progressing according to standards but permitted to enroll; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

Students must be in good academic standing with the Graduate School, their program, and their advisor. The Program Director and the Graduate School regularly reviews the record of any student who received grades of BC, C, D, F, or I in courses numbered 300 or above, or grades of U in research and thesis. This review could result in academic probation with a hold on future enrollment, and the student may be suspended from graduate studies.

The program director and the Graduate School may also put students on probation for incompletes not cleared within one term. All incomplete grades must be resolved before a degree is granted.

## ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their advisor, scheduled by December 17 and completed by April 30.

Failure to do so will result in a hold being placed on the student's registration. The meeting may be held via telephone, skype, or in person.

## ASSESSMENTS AND EXAMINATIONS

No formal examination is required.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence.

Students may count the coursework completed before their absence for meeting graduate degree credit requirements; the Graduate School will not count that work toward the Graduate School's minimum residence credit minimum.

## LANGUAGE REQUIREMENTS

No language requirements.

## PEOPLE

**Faculty:** Professors Eide (chair), Eisenstein, Smith; Associate Professor Yen

## NUTRITIONAL SCIENCES, DOCTORAL MINOR

The doctoral minor in nutritional sciences aims to articulate, critique, and elaborate the theories, research methods, and approaches to inquiry in nutritional sciences. Specific knowledge areas of focus include intermediary metabolism, functions and metabolism of vitamins and minerals, nutrition-related diseases such as obesity and diabetes, and fundamental principles of epidemiology and nutrition policy.

Those completing the doctoral minor in nutritional sciences are expected to identify sources and assemble evidence pertaining to questions or challenges in nutritional sciences, recognize the most appropriate methodologies and practices, evaluate or synthesize information pertaining to questions or challenges in nutritional sciences, communicate clearly in ways appropriate to the field of nutritional sciences, and recognize and apply principles of ethical professional conduct.

## REQUIREMENTS

9 credits:

1. NUTR SCI/BIOCHEM 510 Biochemical Principles of Human and Animal Nutrition (3 cr)
2. NUTR SCI/BIOCHEM 619 Advanced Nutrition: Intermediary Metabolism of Macronutrients (3 cr)
3. Three courses selected from the following:\*
  - a. NUTR SCI/POP HLTH 621 Introduction to Nutritional Epidemiology (1 cr)
  - b. NUTR SCI/M&ENVTOX 623 Advanced Nutrition: Minerals (1 cr)
  - c. NUTR SCI 625 Advanced Nutrition: Obesity and Diabetes (1 cr)
  - d. NUTR SCI/AN SCI 626 Experimental Diet Design (1 cr)
  - e. NUTR SCI 627 Advanced Nutrition: Vitamins (1 cr)
  - f. NUTR SCI 881 Seminar-Topics in Human and Clinical Nutrition (1 cr) or NUTR SCI/BIOCHEM 901 Seminar-Nutrition and Metabolism (Advanced) (presentation required)

\*Appropriate NUTR SCI 875 Special Topics courses can be used to substitute for any of the 1-credit courses above with prior approval of the graduate program coordinator.

## ADMISSIONS

Admissions: Graduate Program Coordinator—Jonathan King (jmking4@wisc.edu)

## PEOPLE

**Faculty:** Professors Eide (chair), Eisenstein, Groblewski, Lai, Ney, Ntambi, Smith, Sunde, Tanumihardjo; Associate Professors Olson, Yen; Assistant Professor Parks. Members of the Interdepartmental Graduate Program in Nutritional Sciences from outside the department: Adams, Anderson, Armentano, Attie, Binkley, Carey, Clagett-Dame, Combs, Cook, Crenshaw, Davis, Denu, Drezner, Engin, Goldman, Hayes, Hernandez, Kanarek, Karasov, Kemnitz, Kimple, Kling, Knoll, Kudsk, Lamming, Mares, Merrins, Pagliarini, Prolla, Reed, Robbins, Schaefer, Simon, White.

## NUTRITIONAL SCIENCES, M.S.

Modern nutrition is a multidisciplinary, integrative science, and the Interdepartmental Graduate Program in Nutritional Sciences (IGPNS) has been developed to meet this diversity in approach and objective. Thus, students can focus their training in one of three emphasis groups:

1. biochemical and molecular nutrition,
2. human nutrition, or
3. animal nutrition.

The degrees offered are the Master of Science and the Doctor of Philosophy in Nutritional Sciences.

It is the program's goal to provide graduate students interested in nutrition with an opportunity to obtain specialized training in a specific research area and also to obtain a general background in the science and practice of nutrition. The program is sufficiently flexible to allow students

with a wide variety of undergraduate degrees to meet the background prerequisites. The program draws on the strengths of faculty in a number of the university's colleges and academic departments to enhance the instructional and research experience.

The training objectives of the IGPNS are to provide students with an understanding of basic nutritional principles as they apply to both humans and animals, to provide them with current knowledge in a specific area of emphasis, to make them aware of the integrative and multidisciplinary nature of nutrition research, and to direct them toward a successful career through the thesis and publications.

**Biochemical and molecular nutrition.** This emphasis group focuses on the application of biochemical and physiological approaches to the understanding of nutrient function and metabolism in systems ranging from the whole animal to the molecular level.

**Human nutrition.** This emphasis group takes a comprehensive view of human nutrition with emphasis on the maintenance and promotion of human health. It utilizes diverse research approaches to carry out studies on nutrient requirements, metabolism, and interactions. Research may involve physiological and biochemical studies, animal models and epidemiological, and educational or clinical interventions.

**Animal nutrition.** This emphasis group takes a comprehensive view of animal nutrition with a focus on expanding understanding of nutrient utilization. Research activities involve both the performance of domestic animals and general comparative nutrition across animal species. Studies may range from applied animal feeding trials to basic studies on nutrient metabolism or integrated whole-animal metabolism with an emphasis on quantification and regulation.

Thirty-three students from throughout the world are currently enrolled in the program. Twenty-four are doctoral candidates and nine are seeking master's degrees.

The graduate faculty have well-developed, competitively funded research programs and have been recognized for their activities by receiving national awards. They are active in national and international nutrition activities, and serve on editorial boards, as society officers, and as participants in numerous workshops and on advisory committees.

## FUNDING

Assistantships and fellowships are available to support students. Information about financial assistance may be obtained from the department office.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available tracks in biochemical and molecular, and human nutrition

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With approval of the certification committee, students are allowed to count up to 14 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With approval of the certification committee, students may count up to 7 credits from a UW-Madison undergraduate degree, numbered 400 and above, toward the M.S. degree, provided that the course satisfies a requirement within the student's core curriculum or IGPNS emphasis group. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNIVERSITY SPECIAL

With approval of the certification committee, students are allowed to count no more than 14 credits of coursework taken as a UW-Madison Special student, provided the course satisfies a requirement within the student's core curriculum or IGPNS emphasis group and is numbered 300 or above. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

12 credits: fall and spring semesters

2 credits: per eight-week summer session

### PROGRAM-SPECIFIC COURSES REQUIRED

#### Biochemical and Molecular Track

Code	Title	Credits
NUTR SCI/	Advanced Nutrition: Intermediary	3
BIOCHEM 619	Metabolism of Macronutrients	
NUTR SCI/	Introduction to Nutritional	1
POP HLTH 621	Epidemiology	
NUTR SCI/	Advanced Nutrition: Minerals	1
M&ENVTOX 623		
NUTR SCI 625	Advanced Nutrition: Obesity and Diabetes	1
NUTR SCI/	Experimental Diet Design	1
AN SCI 626		
NUTR SCI 627	Advanced Nutrition: Vitamins	1

NUTR SCI 600	Introductory Seminar in Nutrition	1
NUTR SCI 931	Seminar-Nutrition	1
BIOCHEM/ NUTR SCI 901	Seminar-Nutrition and Metabolism (Advanced)	1
NUTR SCI 799	Practicum in Nutritional Sciences Teaching (or equivalent experience)	1-3
Select 4 credits of BIOCHEM		4
Select a quantitative methods course		

### Human Nutrition Track

Code	Title	Credits
NUTR SCI/ BIOCHEM 619	Advanced Nutrition: Intermediary Metabolism of Macronutrients	3
NUTR SCI/ POP HLTH 621	Introduction to Nutritional Epidemiology	1
NUTR SCI/ M&ENVTOX 623	Advanced Nutrition: Minerals	1
NUTR SCI 625	Advanced Nutrition: Obesity and Diabetes	1
NUTR SCI/ AN SCI 626	Experimental Diet Design	1
NUTR SCI 627	Advanced Nutrition: Vitamins	1
NUTR SCI 600	Introductory Seminar in Nutrition	1
NUTR SCI 931	Seminar-Nutrition	1
NUTR SCI 881	Seminar-Topics in Human and Clinical Nutrition	1
NUTR SCI 799	Practicum in Nutritional Sciences Teaching (or equivalent experience)	1-3

Select a research methods or data analysis course

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The IGPNS requires a cumulative 3.0 GPA for all courses taken in the UW Graduate School. Grades in research (Nutri Sci 991) are not included in the calculation of the GPA. A student who does not maintain a 3.0 GPA can continue on probationary status for two semesters at the recommendation of the major professor. If, at that time, the student does not achieve a cumulative 3.0 GPA, they will be dropped from the program.

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Students must complete either a research-based thesis or a literature-based report that passes scholarly review.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Candidates for graduate study in nutritional sciences should have a strong background in mathematics, chemistry, and biological and medical sciences or social sciences. Specific prerequisites for the graduate program include five to six semesters of chemistry, three semesters of biological sciences including a course in animal physiology, mathematics through trigonometry, and a course in calculus or statistics. Students who have not completed all the requirements may be admitted, but deficiencies should be made up during the first year of graduate study.

In general, all applicants must have a minimum grade point average of at least 3.0 (on a 4.0 scale). Graduate Record Exam (GRE) scores are required as well as three references and a personal statement. Acceptance requires approval by the Department of Nutritional Sciences and the Graduate School.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, and elaborates the theories, research methods, and approaches to inquiry in nutritional sciences. Specific knowledge areas of focus include intermediary metabolism, functions and metabolism of vitamins and minerals, nutrition-related diseases such as obesity and diabetes, and fundamental principles of epidemiology and nutrition policy.
- Identifies sources and assembles evidence pertaining to questions or challenges in nutritional sciences.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in nutritional sciences.
- Communicates clearly in ways appropriate to the field of nutritional science. This includes the composition of primary research and

review articles. Demonstrates competent communication in the form of oral and poster presentations.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Eide (chair), Eisenstein, Groblewski, Lai, Ney, Ntambi, Smith, Sunde, Tanumihardjo; Associate Professors Olson, Yen; Assistant Professor Parks. Members of the Interdepartmental Graduate Program in Nutritional Sciences from outside the department: Adams, Anderson, Armentano, Attie, Binkley, Carey, Clagett-Dame, Combs, Cook, Crenshaw, Davis, Denu, Drezner, Engin, Goldman, Hayes, Hernandez, Kanarek, Karasov, Kemnitz, Kimple, Kling, Knoll, Kudsk, Lamming, Mares, Merrins, Pagliarini, Prolla, Reed, Robbins, Schaefer, Simon, White.

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3. animal nutrition.

The degrees offered are the Master of Science and the Doctor of Philosophy in Nutritional Sciences.

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## FUNDING

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## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D. with available tracks in animal nutrition, biochemical and molecular, and human nutrition

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With approval of the certification committee, students are allowed to count up to 19 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With approval of the certification committee, students are allowed to count up to 7 credits from a UW–Madison undergraduate degree, numbered 400 and above, toward the Ph.D. degree, provided the course satisfies a requirement within the student's core curriculum or IGPNS emphasis group. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework taken as a UW–Madison Special student, provided the course satisfies a requirement within the student's core curriculum or IGPNS emphasis group. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

Non-dissertators:

12 credits: fall and spring semesters

2 credits: per eight-week summer session

Dissertators: 3 credits per semester

## PROGRAM-SPECIFIC COURSES REQUIRED

### Biochemical and Molecular Track

Code	Title	Credits
NUTR SCI/ BIOCHEM 619	Advanced Nutrition: Intermediary Metabolism of Macronutrients	3
NUTR SCI/ POP HLTH 621	Introduction to Nutritional Epidemiology	1
NUTR SCI/ M&ENVTOX 623	Advanced Nutrition: Minerals	1
NUTR SCI 625	Advanced Nutrition: Obesity and Diabetes	1
NUTR SCI/ AN SCI 626	Experimental Diet Design	1
NUTR SCI 627	Advanced Nutrition: Vitamins	1
NUTR SCI 600	Introductory Seminar in Nutrition	1
NUTR SCI 931	Seminar-Nutrition	1
BIOCHEM/ NUTR SCI 901	Seminar-Nutrition and Metabolism (Advanced)	1
NUTR SCI 799	Practicum in Nutritional Sciences Teaching (or equivalent experience)	1-3

Select 3 credits in BIOCHEM 3

Select additional coursework in nutrition, BIOCHEM, or related areas

Select a quantitative methods course

### Animal Nutrition Track

Code	Title	Credits
NUTR SCI/ BIOCHEM 619	Advanced Nutrition: Intermediary Metabolism of Macronutrients	3
NUTR SCI/ POP HLTH 621	Introduction to Nutritional Epidemiology	1
NUTR SCI/ M&ENVTOX 623	Advanced Nutrition: Minerals	1

NUTR SCI 625	Advanced Nutrition: Obesity and Diabetes	1
NUTR SCI/ AN SCI 626	Experimental Diet Design	1
NUTR SCI 627	Advanced Nutrition: Vitamins	1
NUTR SCI 600	Introductory Seminar in Nutrition	1
NUTR SCI 931	Seminar-Nutrition	1
BIOCHEM/ NUTR SCI 901	Seminar-Nutrition and Metabolism (Advanced)	1
NUTR SCI 799	Practicum in Nutritional Sciences Teaching (or equivalent experience)	1-3
STAT/F&W ECOL/ HORT 571	Statistical Methods for Bioscience I	4
STAT/F&W ECOL/ HORT 572	Statistical Methods for Bioscience II	4
Select a lab course		
Select an animal nutrition course		

### Human Nutrition Track

Code	Title	Credits
NUTR SCI/ BIOCHEM 619	Advanced Nutrition: Intermediary Metabolism of Macronutrients	3
NUTR SCI/ POP HLTH 621	Introduction to Nutritional Epidemiology	1
NUTR SCI/ M&ENVTOX 623	Advanced Nutrition: Minerals	1
NUTR SCI 625	Advanced Nutrition: Obesity and Diabetes	1
NUTR SCI/ AN SCI 626	Experimental Diet Design	1
NUTR SCI 627	Advanced Nutrition: Vitamins	1
NUTR SCI 600	Introductory Seminar in Nutrition	1
NUTR SCI 931	Seminar-Nutrition	1
BIOCHEM/ NUTR SCI 901	Seminar-Nutrition and Metabolism (Advanced)	1
NUTR SCI 799	Practicum in Nutritional Sciences Teaching (or equivalent experience)	1-3

Select a lab or advanced-level quantitative methods course

Select a statistics course

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete either a distributed minor, or a minor within a specific department.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The IGPNS requires a cumulative 3.0 GPA for all courses taken in the UW Graduate School. Grades in research (Nutri Sci 991) are not included in the calculation of the GPA. A student who does not maintain a 3.0 GPA can continue on probationary status for two semesters at the recommendation of the major professor. If, at that time, the student does not achieve a cumulative 3.0 GPA, they will be dropped from the program.

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Students must take and pass two preliminary exams. Students must take the first exam prior to the end of the fifth semester and the second exam by the end of the sixth semesters; summer session does not count as a semester. Students may choose the order of the research exam and the general knowledge exam.

Students must defend a final thesis.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a Doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

A student's program may appeal these time limits through a written request to the Graduate School Office of Admissions and Academic Services.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Candidates for graduate study in nutritional sciences should have a strong background in mathematics, chemistry, and biological and medical sciences or social sciences. Specific prerequisites for the graduate

program include five to six semesters of chemistry, three semesters of biological sciences including a course in animal physiology, mathematics through trigonometry, and a course in calculus or statistics. Students who have not completed all the requirements may be admitted, but deficiencies should be made up during the first year of graduate study.

In general, all applicants must have a minimum grade point average of at least 3.0 (on a 4.0 scale). Graduate Record Exam (GRE) scores are required as well as three references and a personal statement. Acceptance requires approval by the Department of Nutritional Sciences and the Graduate School.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, and practice in nutritional sciences. Specific knowledge areas of focus include intermediary metabolism, functions and metabolism of vitamins and minerals, nutrition-related diseases such as obesity and diabetes, and fundamental principles of epidemiology and nutrition policy.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge in nutritional sciences.
- Creates original research and scholarship that makes a substantive contribution to nutritional sciences.
- Demonstrates breadth of knowledge of nutritional sciences.
- Advances contributions of the field of nutritional sciences to society.
- Communicates complex ideas in a clear and understandable manner through both written and oral presentations.

### PROFESSIONAL CONDUCT

- Fosters and practices ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Eide (chair), Eisenstein, Groblewski, Lai, Ney, Ntambi, Smith, Sunde, Tanumihardjo; Associate Professors Olson, Yen; Assistant Professor Parks. Members of the Interdepartmental Graduate Program in Nutritional Sciences from outside the department: Adams, Anderson, Armentano, Attie, Binkley, Carey, Clagett-Dame, Combs, Cook, Crenshaw, Davis, Denu, Drezner, Engin, Goldman, Hayes, Hernandez, Kanarek, Karasov, Kemnitz, Kimple, Kling, Knoll, Kudsk, Lamming, Mares, Merrins, Pagliarini, Prolla, Reed, Robbins, Schaefer, Simon, White.



# ONCOLOGY

**Administrative Unit:** Oncology

**College/School:** School of Medicine and Public Health

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The graduate program in cancer biology offers a course of study and research leading to the Ph.D. degree. Although a master's degree is offered under special circumstances, students are not admitted for a master's degree.

The Cancer Biology Graduate Program was established at the McArdle Laboratory for Cancer Research in 1940 as the first graduate program in the United States to offer a degree in basic cancer research. The program now includes more than 50 faculty trainers from multiple departments including Oncology, Medicine, Human Oncology, Cell and Regenerative Biology, Medical Microbiology and Immunology, and others. This interdepartmental structure offers students remarkably diverse training opportunities that span the entire breadth of cancer biology research from haploid or diploid genetics, viral and chemical carcinogenesis, eukaryotic cell and molecular biology, virology, molecular toxicology, and whole-animal carcinogenesis. Through the graduate curriculum, students are introduced to the body of knowledge that has been derived directly from experiments on the induction, properties, and therapy of cancer, and receive the necessary background to conduct independent research.

Curriculum requirements are designed to be flexible, providing a maximal opportunity for specialization within this multidisciplinary field. Students learn through core and elective courses; by participation in seminars, conferences, and journal clubs related to their specific areas of expertise; and most important, from their research advisors. Students who join the program select research advisors after conducting a minimum of three monthlong rotations in different laboratories during the first semester. After choosing an advisor, students will also create an advisory committee of five faculty members who will provide guidance throughout the process of earning the Ph.D. degree. The average time to complete the Ph.D. is 5.5 years. The program prepares students for careers in teaching and research in academia, government, and industry.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Cancer Biology, M.S. (p. 577)
- Cancer Biology, Ph.D. (p. 579)

## PEOPLE

**Faculty:** Professors Alarid (co-director), Loeb (co-director), Ahlquist, Alexander, Allen-Hoffmann, Beebe, Bradfield, Bresnick, Bushman, Cryns, Drinkwater, Friedl, Friesen, Gould, Griep, Harari, Hoffmann, Huttenlocher, Jarrard, Kalejta, Keely, Kenney, Kiessling, Lambert, McNeel, Mertz, Miyamoto, Mosher, Raines, Rapraeger, Schuler, Shull, Sugden, Xu; Associate Professors Audhya, Kennedy, Marker, Moser, Ricke, Striker, Tibbetts, Wheeler, Xing, Zhang; Assistant Professors Burkard, Halberg, Johannsen, Kimple, Rui, Sherer, Weaver. For the most current list of

faculty and descriptions of their research interests, the program website (<http://www.cancerbiology.wisc.edu/faculty/faculty.html>).

## CANCER BIOLOGY, M.S.

The graduate program in cancer biology offers a course of study and research leading to the Ph.D. degree. Although a master's degree is offered under special circumstances, students are not admitted for a master's degree.

The Cancer Biology Graduate Program was established at the McArdle Laboratory for Cancer Research in 1940 as the first graduate program in the United States to offer a degree in basic cancer research. The program now includes more than 50 faculty trainers from multiple departments including Oncology, Medicine, Human Oncology, Cell and Regenerative Biology, Medical Microbiology and Immunology, and others. This interdepartmental structure offers students remarkably diverse training opportunities that span the entire breadth of cancer biology research from haploid or diploid genetics, viral and chemical carcinogenesis, eukaryotic cell and molecular biology, virology, molecular toxicology, and whole-animal carcinogenesis. Through the graduate curriculum, students are introduced to the body of knowledge that has been derived directly from experiments on the induction, properties, and therapy of cancer, and receive the necessary background to conduct independent research.

Curriculum requirements are designed to be flexible, providing a maximal opportunity for specialization within this multidisciplinary field. Students learn through core and elective courses; by participation in seminars, conferences, and journal clubs related to their specific areas of expertise; and most important, from their research advisors. Students who join the program select research advisors after conducting a minimum of three monthlong rotations in different laboratories during the first semester. After choosing an advisor, students will also create an advisory committee of five faculty members who will provide guidance throughout the process of earning the Ph.D. degree. The average time to complete the Ph.D. is 5.5 years. The program prepares students for careers in teaching and research in academia, government, and industry.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available thesis and non-thesis tracks

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits numbered 300 or above from a UW–Madison undergraduate degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison special student. Coursework earned five or more years prior to admission to a Master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
ONCOLOGY 703	Carcinogenesis and Tumor Cell Biology	3
ONCOLOGY 675	Readings in Cancer Biology	
ONCOLOGY 675	Statistical Problems in Genetics and Molecular Biology	
ONCOLOGY 675	Problems in Cancer Research	
ONCOLOGY 675	Appropriate Conduct in Science	
ONCOLOGY 675	Seminar	

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in the following courses, otherwise the course must be repeated: ONCOLOGY 703 Carcinogenesis and Tumor Cell Biology and ONCOLOGY 675 Advanced or Special Topics in Cancer Research

## PROBATION POLICY

A semester GPA below 3.0 or an incomplete grade (I) will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained or the Incomplete grade is not cleared during the subsequent semester of full-time enrollment, the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

All students are required to have an Advisor. Students must create a certification committee by the end of their first year. Master's thesis committees must have at least three committee members. Non-thesis master's committees must have at least one graduate faculty member from the student's program.

## ASSESSMENTS AND EXAMINATIONS

Thesis track—requires a formal thesis.

Non-thesis track—no formal examination required.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D. (p. 579)

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Alarid (co-director), Loeb (co-director), Ahlquist, Alexander, Allen-Hoffmann, Beebe, Bradfield, Bresnick, Bushman, Cryns, Drinkwater, Friedl, Friesen, Gould, Griep, Harari, Hoffmann, Huttenlocher, Jarrard, Kalejta, Keely, Kenney, Kiessling, Lambert, McNeel, Mertz, Miyamoto, Mosher, Raines, Rapraeger, Schuler, Shull, Sugden, Xu; Associate Professors Audhya, Kennedy, Marker, Moser, Ricke, Striker, Tibbetts, Wheeler, Xing, Zhang; Assistant Professors Burkard, Halberg, Johannsen, Kimple, Rui, Sherer, Weaver. For the most current list of

faculty and descriptions of their research interests, the program website (<http://www.cancerbiology.wisc.edu/faculty/faculty.html>).

## CANCER BIOLOGY, PH.D.

The graduate program in cancer biology offers a course of study and research leading to the Ph.D. degree. Although a master's degree is offered under special circumstances, students are not admitted for a master's degree.

The Cancer Biology Graduate Program was established at the McArdle Laboratory for Cancer Research in 1940 as the first graduate program in the United States to offer a degree in basic cancer research. The program now includes more than 50 faculty trainers from multiple departments including Oncology, Medicine, Human Oncology, Cell and Regenerative Biology, Medical Microbiology and Immunology, and others. This interdepartmental structure offers students remarkably diverse training opportunities that span the entire breadth of cancer biology research from haploid or diploid genetics, viral and chemical carcinogenesis, eukaryotic cell and molecular biology, virology, molecular toxicology, and whole-animal carcinogenesis. Through the graduate curriculum, students are introduced to the body of knowledge that has been derived directly from experiments on the induction, properties, and therapy of cancer, and receive the necessary background to conduct independent research.

Curriculum requirements are designed to be flexible, providing a maximal opportunity for specialization within this multidisciplinary field. Students learn through core and elective courses; by participation in seminars, conferences, and journal clubs related to their specific areas of expertise; and most important, from their research advisors. Students who join the program select research advisors after conducting a minimum of three monthlong rotations in different laboratories during the first semester. After choosing an advisor, students will also create an advisory committee of five faculty members who will provide guidance throughout the process of earning the Ph.D. degree. The average time to complete the Ph.D. is 5.5 years. The program prepares students for careers in teaching and research in academia, government, and industry.

## FUNDING

The program is committed to ensure continuing financial support for all cancer biology Ph.D. students in good standing. Financial support includes a competitive stipend and tuition remission. All graduate students are also eligible for comprehensive health insurance. Ph.D. students are supported from a variety of different sources including research assistantships from faculty research grants, fellowships, and NIH training grants. There is no teaching requirement for cancer biology students; however, many opportunities exist on campus for those who wish to gain teaching experience.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 credits out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits numbered 300 or above from a UW-Madison undergraduate degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
ONCOLOGY 703	Carcinogenesis and Tumor Cell Biology	3
ONCOLOGY 675	Readings in Cancer Biology	
ONCOLOGY 675	Statistical Problems in Genetics and Molecular Biology	
ONCOLOGY 675	Problems in Cancer Research	
ONCOLOGY 675	Appropriate Conduct in Science	
ONCOLOGY 675	Seminar	

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Minor—not required. Students who wish to complete a minor have the option to do so.

Breadth Requirements—all doctoral students must complete at least three elective courses outside of the required core curriculum. If a

student chooses to complete a minor, the minor coursework may fulfill the elective requirements.

Students are expected to consult with their advisor/committee concerning minor/breadth requirements by the end of their first year.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in the following courses, otherwise the course must be repeated: ONCOLOGY 703 Carcinogenesis and Tumor Cell Biology and ONCOLOGY 675 Advanced or Special Topics in Cancer Research

## PROBATION POLICY

A semester GPA below 3.0 or an incomplete grade (I) will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained or the Incomplete grade is not cleared during the subsequent semester of full-time enrollment, the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

All students are required to have an advisor. Students must create a certification committee (advisor plus four additional faculty members) by the end of their first year. After passing their preliminary examination, students are required to conduct a progress report meeting with their certification committee each year. Failure to do so may result in a hold being placed on the student's registration.

## ASSESSMENTS AND EXAMINATIONS

All doctoral students must pass an oral preliminary examination. All requirements for a doctoral degree, except for the dissertation, must be completed at this time.

Six months before the final oral defense, all doctoral students must present a semifinal dissertation proposal to their committee for approval.

All doctoral students must pass a final oral defense of their doctoral dissertation and subsequently deposit the dissertation in the Graduate School.

## TIME CONSTRAINTS

All doctoral students must pass their preliminary examination by the end of their second year (August 31). Under special circumstances, a one-semester extension may be granted when justified in writing by the student and advisor.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Students seeking admission to the program must complete a bachelor's degree in biology, biochemistry, chemistry, molecular biology, or a related area from an accredited college or university and should have a grade point average of at least 3.0 (on a 4.0 scale). The background of the student should include basic courses in these areas as well as several advanced courses in chemistry, microbiology, biochemistry, genetics, physiology, and molecular biology. Prior laboratory research experience is highly desirable.

Applicants must submit a completed application online, personal statement (reasons for graduate study), official college transcripts, Graduate Record Exam (GRE) scores (the subject test is recommended, but not required), and three letters of recommendation.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Alarid (co-director), Loeb (co-director), Ahlquist, Alexander, Allen-Hoffmann, Beebe, Bradfield, Bresnick, Bushman, Cryns, Drinkwater, Friedl, Friesen, Gould, Griep, Harari, Hoffmann, Huttenlocher, Jarrard, Kalejta, Keely, Kenney, Kiessling, Lambert, McNeel, Mertz, Miyamoto, Mosher, Raines, Rapraeger, Schuler, Shull, Sugden, Xu; Associate Professors Audhya, Kennedy, Marker, Moser, Ricke, Striker, Tibbetts, Wheeler, Xing, Zhang; Assistant Professors Burkard, Halberg, Johannsen, Kimple, Rui, Sherer, Weaver. For the most current list of faculty and descriptions of their research interests, the program website (<http://www.cancerbiology.wisc.edu/faculty/faculty.html>).

# OPERATIONS AND INFORMATION MANAGEMENT

**Administrative Unit:** Operations and Information Management

**College/School:** School of Business

**Admitting Plans:** MBA

**Degrees Offered:** MBA, M.S.

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE PROFESSIONAL/CERTIFICATES

- Business: Operations and Technology Management, M.S. (p. 581)
- Business: Operations and Technology Management, MBA (p. 582)

## PEOPLE

**Faculty:** Professors Morris (chair), De Croix, Hausch, Siemsen, Wemmerlov; Associate Professors Finster, Kim, Lazimy; Assistant Professors Bavafa, Tong

## BUSINESS: OPERATIONS AND TECHNOLOGY MANAGEMENT, M.S.

The M.S. degree in the School of Business is currently designed for students who wish to pursue very specialized studies within one of two specific fields: global real estate (in the business: real estate and urban land economics M.S.) and finance (within the business: finance, investment and banking M.S.). With previous undergraduate exposure to the functional areas of business, students are able to gain a more extensive focus in one of these two specific areas of business.

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School

of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between special and graduate tuition), students are allowed to count no more than 9 credits of coursework numbered 700 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to the master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission consideration requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. Work experience is not required. Applicants should have an undergraduate minimum grade point average (GPA) of 3.0 or higher on a 4.0 scale. In addition to academic credentials, test scores, personal achievements, motivation, communication skills (written and oral) and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT) or the Graduate Record Exam (GRE), taken within five years of the starting term, is required of all applicants to the Ph.D. and M.S. Programs. Also, all domestic (including Puerto Rico) and international applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL). A recommended minimum TOEFL score of 106 (New iBT), obtained within two years of the intended starting term, is needed for admission consideration. International

applicants who have completed a four-year bachelor's degree in a country where the official language is English may request a waiver of the TOEFL requirement. A master's degree from an English-speaking institution does not qualify for a waiver of the TOEFL. The school accepts IELTS and Pearson Test of English as substitutes for TOEFL.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Apply foundational theories and knowledge from core management and engineering disciplines to make effective business decisions based on cross-functional thinking whether in general operations and technology management or in a chosen specialty area (such as healthcare operations or technology product management).
- Apply core operations principles about processes and technologies to the design, justification, operation, assessment, and improvement of organizational and system performance from both financial and nonfinancial perspectives.

### PROFESSIONAL CONDUCT

- Effectively lead and manage organizational and technological change that supports and improves business processes and creates value for customers.
- Develop enduring networks and relationships with industry partners.

## PEOPLE

**Faculty:** Professors Morris (chair), De Croix, Hausch, Siemsen, Wemmerlov; Associate Professors Finster, Kim, Lazimy; Assistant Professors Bavafa, Tong

## BUSINESS: OPERATIONS AND TECHNOLOGY MANAGEMENT, MBA

Developing leaders who create business value, OTM is an MBA specialization suited for those seeking advanced positions as consultants, analysts, product or service managers, project leaders, business developers, or operations, information technology and supply chain managers—while priming themselves for senior leadership roles. OTM students gain critical business skills applicable to both service organizations and manufacturing firms. The OTM MBA is supported by the Erdman Center for Operations and Technology Management. See the program website (<http://beta.bus.wisc.edu/programs/mba-programs/full-time-mba/career-specializations/operations-and-technology-management>) for more information.

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the

School of Business faculty bring a variety of real-world experience to the program.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

MBA

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits of prior coursework are allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

No credits of prior coursework are allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits<sup>1</sup>

#### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00

#### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher

grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

<sup>1</sup> Full-time MBA students may be allowed to enroll in up to 18 credits per term in the 2016–2017 academic year. Contact the Wisconsin School of Business for more information.

## ADMISSIONS

Admission consideration for the MBA program requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. The School of Business seeks a minimum of two years of full-time work experience along with a strong undergraduate performance. In addition to academic credentials, GMAT scores, and work experience, personal achievements, motivation, communication skills (written and oral), international exposure, and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT), taken within five years of the starting term, is required of all applicants to the School of Business; the Graduate Record Exam (GRE) may be an acceptable alternative on a case by case basis. All applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL), the Pearson Test of English (PTE), Intensive English as a Second Language (IELTS), or show the completion of an Interlink

program. A minimum iBT TOEFL score of 100 or equivalent, obtained within two years of the intended start term, is required. International applicants who have completed a degree at an institution whose primary language of instruction was English may request a waiver of this requirement on the application.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Apply foundational theories and knowledge from core management and engineering disciplines to make effective business decisions based on cross-functional thinking whether in general operations and technology management or in a chosen specialty area (such as healthcare operations or technology product management).
- Apply core operations principles about processes and technologies to the design, justification, operation, assessment, and improvement of organizational and system performance from both financial and nonfinancial perspectives.

### PROFESSIONAL CONDUCT

- Effectively lead and manage organizational and technological change that supports and improves business processes and creates value for customers.
- Develop enduring networks and relationships with industry partners.

## PEOPLE

**Faculty:** Professors Morris (chair), De Croix, Hausch, Siemen, Wemmerlov; Associate Professors Finster, Kim, Lazimy; Assistant Professors Bavafa, Tong



# PATHOLOGY

**Administrative Unit:** Pathology and Laboratory Medicine

**College/School:** School of Medicine and Public Health

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.S., Ph.D.

The graduate program in cellular and molecular pathology (CMP) is a joint venture of the UW–Madison Department of Pathology and the School of Medicine and Public Health (SMPH). This interdisciplinary training environment, embedded in an exciting and challenging basic and clinical translational research context, offers a high level of intellectual stimulation for predoctoral training. The CMP curriculum is novel at the university, providing integrated training in fundamental concepts of modern pathobiology with an emphasis on biochemical, cellular and molecular approaches, and providing rigorous in-depth bench-level research training in understanding the fundamental bases of diseases. Trainees and trainers participate in rigorous pathobiology courses and activities, and are offered in-depth research training in the pathobiology of cancer, nervous and immune system diseases, and signal transduction in basic disease mechanisms.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Cellular and Molecular Pathology, M.S. (p. 585)
- Cellular and Molecular Pathology, Ph.D. (p. 586)

## PEOPLE

**Faculty:** Ahmad, Alexander, Allen-Hoffmann, Andes, Arendt, Asimakopoulos, Attie, Atwood, Bendlin, Bresnick, Broman, Burger, Burkard, Burlingham, Bushman, Capitini, Carrithers, Chen, Cho, Coon, Currie, Deming, Denlinger, Diamali, Emborg, Engin, Evans, Fabry, Fleming, Friedl, Friedrich, Ge, Gern, Golos, Greenspan, Gumperz, Guo, Halberg, Hematti, Huttenlocher, Jarjour, Jones, Kenney, Kent, Kimble, Kimple, Klein, Kuo, Lakkaraju, Lamming, Lee, Lewis, Liu, Lloyd, Loeb, Messing, Mezrich, Nett, Nickells, D. O'Connor, S. O'Connor, Otto, Pepperell, Peters, Puglielli, Rapraeger, Rey, Rui, Sandor, Sauer, Seroogy, Sheehan, Sheibani, Shelef, Slukvin, J. Smith, Sondel, Sridharan, Suresh, Suzuki, Svaren, Talaat, Thorne, Vermuganti, Wheeler, Xu, Yoshino, Su-chun Zang, Zhao, W. Zhong

## CELLULAR AND MOLECULAR PATHOLOGY, M.S.

The graduate program in cellular and molecular pathology (CMP) is a joint venture of the UW–Madison Department of Pathology and the School of Medicine and Public Health (SMPH). This interdisciplinary training environment, embedded in an exciting and challenging basic and clinical translational research context, offers a high level of intellectual stimulation for predoctoral training. The CMP curriculum is novel at the university, providing integrated training in fundamental concepts of modern pathobiology with an emphasis on biochemical, cellular and molecular approaches, and providing rigorous in-depth bench-level research training in understanding the fundamental bases of diseases. Trainees and trainers participate in rigorous pathobiology courses and

activities, and are offered in-depth research training in the pathobiology of cancer, nervous and immune system diseases, and signal transduction in basic disease mechanisms.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (16 out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 7 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Up to 7 credits numbered 300 or above from a UW–Madison undergraduate career are allowed to count toward the degree with committee approval. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 7 credits of coursework numbered 300 or above taken as a UW–Madison University Special students. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
PATH 900	Seminar (every semester enrolled)	0

PATH 901	Student Seminar / Journal Club (every semester enrolled)	1
PATH 990	Research (every semester enrolled)	1-8
PATH 750	Cellular and Molecular Biology/ Pathology (spring semester, first year in program)	3
PATH 802	Histopathology for Translational Scientists (fall semester, first year in program)	3
PATH 803	Pathogenesis of Major Human Diseases (fall semester, second year in program)	3
PATH 809	Molecular Mechanisms of Disease (spring semester, second year in program)	2

### MASTERS BREADTH REQUIREMENTS

Statistics course (2–4 cr); ethics course (1–2 cr); elective (minimum of one, 2–3 cr); recommended electives—PATH 807 Immunopathology: The Immune System in Health and Disease (2 cr), PATH 751 Cell and Molecular Biology of Aging (3 cr)

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

Students must maintain a B average or better in all graduate courses.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their advisor, scheduled by December 17 and completed by April 30. Failure to do so will result in a hold being placed on the student's registration.

### ASSESSMENTS AND EXAMINATIONS

Students must complete all required courses including PATH 809. Students must write a master thesis and defend it in front of their Advisory Committee. The MS thesis does not need to be published.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

No language requirements.

### ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D. (p. 586)

### LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will gain a better understanding of the basic mechanisms of disease at the level of cell, organ, and body, as well as the morphologic expression patterns of selected common specific disease processes.
- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.

### PROFESSIONAL CONDUCT

- Commit to increase professional growth and knowledge, to attend educational programs and to personally contribute expertise to meetings and journals.
- Recognizes and applies principles of ethical and professional conduct.

### PEOPLE

**Faculty:** Ahmad, Alexander, Allen-Hoffmann, Andes, Arendt, Asimakopoulos, Attie, Atwood, Bendlin, Bresnick, Broman, Burger, Burkard, Burlingham, Bushman, Capitini, Carrithers, Chen, Cho, Coon, Currie, Deming, Denlinger, Diamali, Emborg, Engin, Evans, Fabry, Fleming, Friedl, Friedrich, Ge, Gern, Golos, Greenspan, Gumperz, Guo, Halberg, Hematti, Huttenlocher, Jarjour, Jones, Kenney, Kent, Kimble, Kimple, Klein, Kuo, Lakkaraju, Lamming, Lee, Lewis, Liu, Lloyd, Loeb, Messing, Mezrich, Nett, Nickells, D. O'Connor, S. O'Connor, Otto, Pepperell, Peters, Puglielli, Rapraeger, Rey, Rui, Sandor, Sauer, Seroogy, Sheehan, Sheibani, Shelef, Slukvin, J. Smith, Sondel, Sridharan, Suresh, Suzuki, Svaren, Talaat, Thorne, Vermuganti, Wheeler, Xu, Yoshino, Su-chun Zang, Zhao, W. Zhong

## CELLULAR AND MOLECULAR PATHOLOGY, PH.D.

The graduate program in cellular and molecular pathology (CMP) is a joint venture of the UW–Madison Department of Pathology and the School of Medicine and Public Health (SMPH). This interdisciplinary

training environment, embedded in an exciting and challenging basic and clinical translational research context, offers a high level of intellectual stimulation for predoctoral training. The CMP curriculum is novel at the university, providing integrated training in fundamental concepts of modern pathobiology with an emphasis on biochemical, cellular and molecular approaches, and providing rigorous in-depth bench-level research training in understanding the fundamental bases of diseases. Trainees and trainers participate in rigorous pathobiology courses and activities, and are offered in-depth research training in the pathobiology of cancer, nervous and immune system diseases, and signal transduction in basic disease mechanisms.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 out of 51 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 7 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Up to 7 credits numbered 300 or above from a UW-Madison undergraduate career are allowed to count toward the degree with committee approval. Coursework earned five or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 7 credits of coursework numbered 300 or above taken as a UW-Madison University Special students. Coursework earned five or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
PATH 900	Seminar (every semester enrolled)	0
PATH 901	Student Seminar / Journal Club (every semester enrolled)	1
PATH 990	Research (every semester enrolled)	1-8
PATH 750	Cellular and Molecular Biology/ Pathology (spring semester, first year in program)	3
PATH 802	Histopathology for Translational Scientists (fall semester, first year in program)	3
PATH 803	Pathogenesis of Major Human Diseases (fall semester, second year in program)	3
PATH 809	Molecular Mechanisms of Disease (spring semester, second year in program)	2

### DOCTORAL MINOR/BREADTH REQUIREMENTS

For interdisciplinary or minor requirements, see CMP (<http://www.cmp.wisc.edu/current/phd-interdisciplinary-minor>).

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

Students must maintain a B average or better in all graduate courses.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their advisor, scheduled by December 17 and completed by April 30. Failure to do so will result in a hold being placed on the student's registration.

## ASSESSMENTS AND EXAMINATIONS

Students must complete all required courses including PATH 809. They must pass their Prelim B exam after their second year of graduate school. Students must defend their PhD thesis within five years of completion of Preliminary exam B.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

Friedrich, Ge, Gern, Golos, Greenspan, Gumperz, Guo, Halberg, Hematti, Huttenlocher, Jarjour, Jones, Kenney, Kent, Kimble, Kimple, Klein, Kuo, Lakkaraju, Lamming, Lee, Lewis, Liu, Lloyd, Loeb, Messing, Mezrich, Nett, Nickells, D. O'Connor, S. O'Connor, Otto, Pepperell, Peters, Puglielli, Rapraeger, Rey, Rui, Sandor, Sauer, Seroogy, Sheehan, Sheibani, Shelef, Slukvin, J. Smith, Sondel, Sridharan, Suresh, Suzuki, Svaren, Talaat, Thorne, Vermuganti, Wheeler, Xu, Yoshino, Su-chun Zang, Zhao, W. Zhong

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program's website for details.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Students will gain a better understanding of the basic mechanisms of disease at the level of cell, organ, and body, as well as the morphologic expression patterns of selected common specific disease processes.
- Articulates research problems, potentials, and limits with respect to theory, knowledge, and practice within the field of study.
- Formulates ideas, concepts, designs, and techniques beyond the current boundaries of knowledge within the chosen field of study.
- Creates research and scholarship that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

## PROFESSIONAL CONDUCT

- Commit to increase professional growth and knowledge, to attend educational programs and to personally contribute expertise to meetings and journals.
- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Ahmad, Alexander, Allen-Hoffmann, Andes, Arendt, Asimakopoulos, Attie, Atwood, Bendlin, Bresnick, Broman, Burger, Burkard, Burlingham, Bushman, Capitini, Carrithers, Chen, Cho, Coon, Currie, Deming, Denlinger, Diamali, Emborg, Engin, Evans, Fabry, Fleming, Friedl,

# PHARMACOLOGY

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE PROFESSIONAL/CERTIFICATES

- Molecular and Cellular Pharmacology, Doctoral Minor (p. 589)
- Molecular and Cellular Pharmacology, M.S. (p. 589)

## MOLECULAR AND CELLULAR PHARMACOLOGY, DOCTORAL MINOR

The objective of the doctoral minor in molecular and cellular pharmacology is to equip students with an introduction to some of the skills required to conduct state-of-the-art biomolecular, biomedical, and pharmacological basic research. Advances in biomedical sciences are often based on the development of new drugs, which improve and save the lives of millions of patients. Drugs with specific biochemical actions are also powerful research tools. They provide pharmacologists and other biomedical scientists unique research opportunities which help to elucidate cellular signaling cascades.

### STUDENT LEARNING GOALS

#### Knowledge, Skills Learning Goals

1. Gain a basic understanding of the pharmacological principles that underlie all biological processes.
2. Become aware of the current limitations of the state of understanding of this discipline and the strategies that are required to advance the field of pharmacology.

#### Professional Conduct Learning Goals

3. Fosters ethical and professional conduct in the sciences, including but not limited to: exposition of the scientific method; ethical design of experimental protocols; reproducibility in science; professional behavior in industrial, government, and academic settings; documentation of scientific results; communication to other scientists and the public; peer review; and confidentiality.

## REQUIREMENTS

PHMCOL-M/PHM SCI 521 Pharmacology I (3 cr)

PHMCOL-M/PHM SCI 522 Pharmacology II (3 cr)

PHMCOL-M/BIOCHEM/ZOOLOGY 630 Cellular Signal Transduction Mechanisms (3 cr)

PHMCOL-M/M&ENVTOX/MEDICINE/ONCOLOGY/PATH/PHM SCI/  
POP HLTH 625 Toxicology I (3 cr)

## ADMISSIONS

Kristin Cooper, Program Coordinator. [kgcooper@wisc.edu](mailto:kgcooper@wisc.edu)

## PEOPLE

**Faculty:** Professors Anderson, Auger, Beebe, Bement, Bresnick, Chapman, Cryns, Czajkowski, Denu, Greenspan, Hardin, Hayney, Huttenlocher, Jackson, Jefcoate, Johnson, Kalejta, Kamp, Keck, Keely, Kimble, Kolesar, Kwon, Li, Martin, Miyamoto, Mosher, Murphy, Raines, Rapraeger, Schuler, Sheibani, Svaren, Thomson, Tibbetts, Wassarman, Xu, Yang, Zhang, Zhao; Associate Professors Audhya (director), Balijepalli, Burkard, Buxton, Chanda, Chang, Ge, Hornberger, Jorgensen, Kuo, Kalejta, Lee, Masters, Pagliarini, Roopra, Striker, Tang, Weaver, Wheeler, Xing; Assistant Professors, Blum, Collier, Jiang, Johannsen, M. Kimple, R. Kimple, Kreeger, Lamming, Lou, Rui, Saha, Sherer, Sridharan

## MOLECULAR AND CELLULAR PHARMACOLOGY, M.S.

The molecular and cellular pharmacology (MCP) program, in cooperation with the Center for Training in Pharmacology and Drug Development (CTPDD), offers interdisciplinary graduate training in the field of molecular and cellular pharmacology. The primary emphasis is doctoral training in molecular biology, biochemistry, genetics, and cell biology with a focus on integrating these methodologies with modern pharmacology. Other related degree programs under the direction of program faculty are cellular and molecular biology, environmental toxicology, neuroscience, biomolecular chemistry, and genetics.

The MCP program emphasizes study of the basic molecular and cellular mechanisms involved in the regulation of cellular events and cellular signal transduction mechanisms and the interaction of hormones, drugs, and chemicals with living systems. The faculty provides expertise in such challenging areas as the molecular events related to neurotransmitter receptor G-protein effector signaling; molecular structure of neurotransmitter receptors; genetic approaches to mechanisms for elucidating synaptic transmission; molecular mechanisms of action drugs of abuse and neurotransmitter transporters; phosphoinositide-generated second messengers and their regulation of membrane protein function and cell growth; regulation of tissue-specific gene transcription; molecular mechanisms of erythropoiesis; molecular mechanisms of leukemogenesis; regulation of hormone and neurotransmitter release; mechanism of action of polypeptide hormones; peptide-hormone receptors; control of steroid synthesis; induction of drug-metabolizing enzymes; chemical initiation and prevention of cancer; mechanisms and regulation of antibiotic action and resistance. Aside from providing insight into drug action, studies in pharmacology have led to important advances in our understanding of fundamental biological processes.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

**MASTER'S DEGREES**

M.S.

**MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT**

30 credits

**MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT**

16 credits

**MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT**

Half of the degree coursework (15 of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

**PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

With program approval, students are allowed to count no more than 7 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's is not allowed to satisfy requirements.

**CREDITS PER TERM ALLOWED**

15 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

Contact the program for information on any additional required courses.

**OVERALL GRADUATE GPA REQUIREMENT**

3.00

**OTHER GRADE REQUIREMENTS**

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

**PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

**ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

**ASSESSMENT AND EXAMINATIONS**

Contact the program for information on required assessments and examinations.

**TIME CONSTRAINTS**

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

**LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

**ADMISSIONS**

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D. (<https://molpharm.wisc.edu/admissions-how-to-apply>)

**LEARNING OUTCOMES****KNOWLEDGE AND SKILLS**

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates clearly in ways appropriate to the field of study.

**PROFESSIONAL CONDUCT**

- Recognizes and applies principles of ethical and professional conduct.

**PEOPLE**

**Faculty:** Professors Anderson, Auger, Beebe, Bement, Bresnick, Chapman, Cryns, Czajkowski, Denu, Greenspan, Hardin, Hayney, Huttenlocher,

Jackson, Jefcoate, Johnson, Kalejta, Kamp, Keck, Keely, Kimble, Kolesar, Kwon, Li, Martin, Miyamoto, Mosher, Murphy, Raines, Rapraeger, Schuler, Sheibani, Svaren, Thomson, Tibbetts, Wassarman, Xu, Yang, Zhang, Zhao; Associate Professors Audhya (director), Balijepalli, Burkard, Buxton, Chanda, Chang, Ge, Hornberger, Jorgensen, Kuo, Kalejta, Lee, Masters, Pagliarini, Roopra, Striker, Tang, Weaver, Wheeler, Xing; Assistant Professors, Blum, Collier, Jiang, Johannsen, M. Kimple, R. Kimple, Kreeger, Lamming, Lou, Rui, Saha, Sherer, Sridharan

## PHARMACY—SCHOOL-WIDE

**Administrative Unit:** School of Pharmacy

**College/School:** School of Pharmacy

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S. in Pharmaceutical Sciences; M.S. in Pharmacy; M.S. in Social and Administrative in Pharmacy; Ph.D. in Pharmaceutical Sciences; Ph.D. in Social and Administrative Sciences in Pharmacy

**Minors and Certificates:** Doctoral Minor in Pharmaceutical Sciences; Doctoral Minor in Social and Administrative Sciences in Pharmacy

## PHARMACEUTICAL SCIENCES

The pharmaceutical sciences division (<https://pharmacy.wisc.edu/psd>) at the School of Pharmacy offers the doctor of philosophy (Ph.D.) degree in pharmaceutical sciences (students are accepted only for the Ph.D. program; the master of science degree is awarded only under special circumstances). The program provides a rigorous background in a range of scientific disciplines that are critical to the success of modern pharmaceutical scientists. The program's interdisciplinary design combines pharmaceutically relevant aspects of classical disciplines such as chemistry, biology, and engineering. Students concentrate in one of three research cores: drug discovery, drug action, or drug delivery. Extensive communication and collaboration occur between these cores, mirroring the importance of interdisciplinary research teams in the pharmaceutical field.

## PHARMACY

The pharmacy master's program is a two-year, combined pharmacy administrative residency (ASHP Accredited PGY1 and PGY2) and academic degree program, which culminates in a master of science degree, emphasizing health system pharmacy management and leadership. **Applicants to the pharmacy M.S. program must be eligible for licensure as a pharmacist in the State of Wisconsin.** The program is designed to provide the resident/student with a solid academic foundation and experience in the administration of exemplary pharmaceutical services across an integrated health system.

## SOCIAL AND ADMINISTRATIVE SCIENCES IN PHARMACY

The graduate program in social and administrative sciences in pharmacy (SAS) provides a rigorous background in a range of disciplines critical to preparing the next generation of health services researchers. The program focuses on scientific and humanistic bases for understanding and influencing interactions involving patients, medications, pharmacists, other caregivers, and health care systems. Further, it evaluates the need for pharmacists to fulfill various roles, such as clinical practitioner, drug consultant, and drug distribution system manager, in order to meet the needs of diverse patients, providers, and organizations that utilize pharmacy services.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Pharmaceutical Sciences, Doctoral Minor (p. 592)
- Pharmaceutical Sciences, M.S. (p. 593)
- Pharmaceutical Sciences, Ph.D. (p. 595)

- Pharmacy, M.S. (p. 597)
- Social and Administrative Sciences in Pharmacy, M.S. (p. 599)
- Social and Administrative Sciences in Pharmacy, Ph.D. (p. 601)

## RESOURCES

## FACILITIES

The pharmaceutical sciences division is housed in Rennebohm Hall (<http://www.pharmacy.wisc.edu/about-school/rennebohm-hall>), a seven-story, state-of-the-art facility that opened in 2001 and offers 120,000 assignable square feet. The pharmaceutical sciences division comprises floors 4 to 7 of Rennebohm Hall and features 34 laboratories; affiliate Pharmaceutical Sciences graduate faculty are housed at other campus buildings. Located on the northwest edge of campus, Rennebohm Hall is in close proximity to the Health Sciences Learning Center (home of the UW School of Medicine and Public Health), UW Hospital and Clinics, the UW Institute for Clinical and Translational Research (ICTR), the Waisman Center, the Wisconsin Institutes for Medical Research (WIMR), the School of Veterinary Medicine, the School of Nursing, and Ebling Library for the Health Sciences. Many researchers affiliated with Wisconsin's Carbone Comprehensive Cancer Center work within these adjacent facilities.

Exceptional research facilities and equipment are highlighted by the school's Analytical Instrumentation Center (AIC) (<http://www.pharmacy.wisc.edu/aic>), comprising mass spectrometry, nuclear magnetic resonance, spectroscopy, and spectrophotometry facilities. The AIC's high-tech instrumentation expedites the isolation and full structural elucidation of small molecules. These chemical entities can be subsequently evaluated via high throughput screening toward lead generation, or specifically utilized to prove novel biological phenomenon toward in-depth mechanistic study. The division offers centralized facilities for computer-aided drug and catalyst design, real-time PCR, gene array detectors, gas chromatographs, high-pressure liquid chromatographs, cell culture, ultra-centrifuges, scintillation counters, and animal care for a variety of species.

The school's Lenor Zeeh Pharmaceutical Experiment Station (<http://www.pharmacy.wisc.edu/zstation>) is a not-for-profit, self-sustaining center of expertise serving faculty researchers across the UW–Madison campus as well as private-sector drug product development. The station provides laboratory services related to compound physical/chemical characterization and basic formulation development to support preclinical development of promising drug candidates and other unmet pharmaceutical-related needs. Pharmaceutical sciences graduate students are eligible to participate in summer internships at the station. Pharmaceutical sciences also houses the university's Medicinal Chemistry Center (<https://pharmacy.wisc.edu/mcc>) (MCC), whose mission is to provide drug discovery expertise to the UW medical community and drive translational research at UW–Madison through designing and synthesizing novel small molecule based therapeutics. Pharmaceutical sciences faculty direct the MCC.

## PHARMACEUTICAL SCIENCES, DOCTORAL MINOR



## PHARMACEUTICAL SCIENCES, M.S.

The pharmaceutical sciences division (<https://pharmacy.wisc.edu/psd>) at the School of Pharmacy offers the doctor of philosophy (Ph.D.) degree in pharmaceutical sciences (students are accepted only for the Ph.D. program; the master of science degree is awarded only under special circumstances). The program provides a rigorous background in a range of scientific disciplines that are critical to the success of modern pharmaceutical scientists. The program's interdisciplinary design combines pharmaceutically relevant aspects of classical disciplines such as chemistry, biology, and engineering. Students concentrate in one of three research cores: drug discovery, drug action, or drug delivery. Extensive communication and collaboration occur between these cores, mirroring the importance of interdisciplinary research teams in the pharmaceutical field.

To enhance a required core curriculum (<https://pharmacy.wisc.edu/programs/pharmsci/curriculum>), an individualized course of study is planned with a faculty advisor. A list of pharmaceutical sciences graduate faculty and their respective areas of research specialization is available from the division website (<https://pharmacy.wisc.edu/psd/faculty-research>) and related links. The pharmaceutical sciences graduate program has educated generations of scientists for challenging positions in industry, academia, and government.

Research in *drug discovery* (<https://pharmacy.wisc.edu/psd/drug-discovery-core>) focuses on areas related to medicinal chemistry, such as small molecule development, natural products isolation and characterization, organic synthesis, chemical biology, and rational drug design.

*Drug action* (<https://pharmacy.wisc.edu/psd/drug-action-core>) focuses on areas related to pharmacology, toxicology, cellular differentiation, development, and disease. Interests include the impact of drugs and toxins on biological systems, mechanisms of normal biology, and mechanisms of disease. These are studied at the cellular, genetic, molecular, and biochemical levels using diverse model systems.

*Drug delivery* (<https://pharmacy.wisc.edu/psd/drug-delivery-core>) (pharmaceutics) emphasizes principles in physical chemistry and drug transport, aiming for advances in formulation, drug targeting, and multimodal therapy. Delivery research includes the solid-state chemistry of drugs, nano-pharmacy, biocompatibility, molecular recognition, computational chemistry, pharmacokinetics, and molecular imaging.

## POSTGRADUATE INFORMATION

Recent program graduates have found employment in a variety of industrial, academic, and regulatory positions. These vary from research and development and other scientific roles for pharmaceutical, chemical, and biotechnology companies to academic research positions; some graduates eventually achieve faculty positions at small colleges or at larger research institutions. By partnering with other career services units on campus, the program has increased career services such that students can sharpen their professional and communication skills and reach a larger network of potential employers. The program graduated 37 Ph.D.s from 2011 to 2015; over 90 percent of these recent alumni were professionally placed within six months of graduation. For more information on first professional placement following graduation, see employers of recent pharmsci graduates on the program website (<https://pharmacy.wisc.edu/programs/pharmsci/student-outcomes>). Faculty and the school's graduate programs coordinator can be consulted for specific

career information (both initial placement and longer-term employment information regarding Ph.D. alumni).

## FUNDING

Financial support is provided to all graduate students in pharmaceutical sciences through a combined mechanism of fellowships, teaching assistantships, research assistantships, and project assistantships. Funding packages for first-year students in the Ph.D. program are provided by the School of Pharmacy and consist of a mixture of fellowships and/or teaching assistant support. In addition, first-year students earn \$1500 in flexible funds to aid in the transition to Madison. After the first academic year, students are supported by their thesis advisor through research assistantship or teaching assistantship appointments. All students receive a stipend (the recommended minimum level for students in the division is \$24,000 for 2015–16), full tuition remission (waiver), and reasonably priced, comprehensive health insurance for the duration of their Ph.D. studies, if they retain good academic standing and a faculty advisor.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of degree coursework (15 credits out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions (the student must have graduate student status on the other institution's transcript at the time the courses were taken). Coursework should be presented to the SoP graduate dean in the first semester of enrollment for consideration. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits of UW–Madison courses numbered 500 or above (earned as a UW–Madison undergraduate) toward the M.S. degree. Coursework should be presented to the SoP graduate dean in the first semester of enrollment for consideration. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 500 or above taken as a UW–Madison special student. Coursework should be presented to the SoP graduate dean in the first semester of enrollment for consideration. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits (fall and spring); 12 credits summer

## PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
PHM SCI 780	Principles of Pharmaceutical Sciences	3
Select at least two of the following core courses:		
PHM SCI 768	Pharmacokinetics	
PHM SCI 786	Natural Product Synthesis, Biosynthesis and Drug Discovery	
BIOCHEM/ PHMCOL-M/ ZOOLOGY 630	Cellular Signal Transduction Mechanisms	
Research ethics/responsible conduct of research course		1
At least one additional graduate course in pharmaceutical sciences or in a field related to one's research (field choice is at the discretion of the thesis advisor)		3
Complete a Research course (PHM SCI 718-PHM SCI 990)		1-12
PHM SCI 931	Pharmaceutical Sciences Seminar (required every fall term during enrollment as a graduate student in the program)	1
PHM SCI 932	Pharmaceutical Sciences Seminar (required every spring during enrollment as a graduate student in the program)	1
Total Credits		10-21

Thesis advisors have the option to require additional courses beyond the minimum requirements listed above.

## OVERALL GRADUATE GPA REQUIREMENT

An overall minimum GPA of 3.0 in graduate level (300 level or higher, non-research) courses is required, unless conditions for probationary status require higher grades.

## OTHER GRADE REQUIREMENTS

Candidates will be dropped from the program if they receive more than 7 credits of grades at the BC level or lower. This applies to formal courses and research credits.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

Students are required to maintain a pharmaceutical sciences faculty member as an M.S. advisor through the duration of their studies. Typically a permanent advisor is found by the end of one's first semester.

An M.S. thesis committee in the Pharmaceutical Sciences Division (PSD) consists of at least three graduate faculty members of the PSD (one of whom is the student's thesis advisor).

## ASSESSMENTS AND EXAMINATIONS

The program expects the M.S. candidate to engage in a research project of a scope appropriate to the time devoted to earning the degree. The results of the research must be described in an M.S. thesis. The thesis must be both presented and defended before the student's M.S. thesis committee.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D. (p. 595)

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate critical knowledge and in-depth understanding of principles in the student's area of expertise.
- Identify important research questions, formulate testable hypotheses, and design experiments to test those hypotheses.
- Conduct original research that contributes to the student's field of study.

- Communicate scientific knowledge and research results effectively to a range of audiences.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.

## PROFESSIONAL CONDUCT

- Apply ethical principles in conducting scientific research.

## PHARMACEUTICAL SCIENCES, PH.D.

The pharmaceutical sciences division (<https://pharmacy.wisc.edu/psd>) at the School of Pharmacy offers the doctor of philosophy (Ph.D.) degree in pharmaceutical sciences (students are accepted only for the Ph.D. program; the master of science degree is awarded only under special circumstances). The program provides a rigorous background in a range of scientific disciplines that are critical to the success of modern pharmaceutical scientists. The program's interdisciplinary design combines pharmaceutically relevant aspects of classical disciplines such as chemistry, biology, and engineering. Students concentrate in one of three research cores: drug discovery, drug action, or drug delivery. Extensive communication and collaboration occur between these cores, mirroring the importance of interdisciplinary research teams in the pharmaceutical field.

To enhance a required core curriculum (<https://pharmacy.wisc.edu/programs/pharmsci/curriculum>), an individualized course of study is planned with a faculty advisor. A list of pharmaceutical sciences graduate faculty and their respective areas of research specialization is available from the division website (<https://pharmacy.wisc.edu/psd/faculty-research>) and related links. The pharmaceutical sciences graduate program has educated generations of scientists for challenging positions in industry, academia, and government.

Research in *drug discovery* (<https://pharmacy.wisc.edu/psd/drug-discovery-core>) focuses on areas related to medicinal chemistry, such as small molecule development, natural products isolation and characterization, organic synthesis, chemical biology, and rational drug design.

*Drug action* (<https://pharmacy.wisc.edu/psd/drug-action-core>) focuses on areas related to pharmacology, toxicology, cellular differentiation, development, and disease. Interests include the impact of drugs and toxins on biological systems, mechanisms of normal biology, and mechanisms of disease. These are studied at the cellular, genetic, molecular, and biochemical levels using diverse model systems.

*Drug delivery* (<https://pharmacy.wisc.edu/psd/drug-delivery-core>) (pharmaceutics) emphasizes principles in physical chemistry and drug transport, aiming for advances in formulation, drug targeting, and multimodal therapy. Delivery research includes the solid-state chemistry of drugs, nano-pharmacy, biocompatibility, molecular recognition, computational chemistry, pharmacokinetics, and molecular imaging.

## POSTGRADUATE INFORMATION

Recent program graduates have found employment in a variety of industrial, academic, and regulatory positions. These vary from research and development and other scientific roles for pharmaceutical, chemical, and biotechnology companies to academic research positions; some graduates eventually achieve faculty positions at small colleges or at

larger research institutions. By partnering with other career services units on campus, the program has increased career services such that students can sharpen their professional and communication skills and reach a larger network of potential employers. The program graduated 37 Ph.D.s from 2011 to 2015; over 90 percent of these recent alumni were professionally placed within six months of graduation. For more information on first professional placement following graduation, see employers of recent pharmsci graduates on the program website (<https://pharmacy.wisc.edu/programs/pharmsci/student-outcomes>). Faculty and the school's graduate programs coordinator can be consulted for specific career information (both initial placement and longer-term employment information regarding Ph.D. alumni).

## FUNDING

Financial support is provided to all graduate students in pharmaceutical sciences through a combined mechanism of fellowships, teaching assistantships, research assistantships, and project assistantships. Funding packages for first-year students in the Ph.D. program are provided by the School of Pharmacy and consist of a mixture of fellowships and/or teaching assistant support. In addition, first-year students earn \$1500 in flexible funds to aid in the transition to Madison. After the first academic year, students are supported by their thesis advisor through research assistantship or teaching assistantship appointments. All students receive a stipend (the recommended minimum level for students in the division is \$24,000 for 2015–16), full tuition remission (waiver), and reasonably priced, comprehensive health insurance for the duration of their Ph.D. studies, if they retain good academic standing and a faculty advisor.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of degree coursework (26 credits out of 51 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 15 credits of graduate coursework from other institutions (the student must have graduate student status on the other institution's transcript at the time the courses were taken). Coursework should be presented to the SoP graduate dean in the first semester of enrollment for consideration. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With approval of the School of Pharmacy's graduate studies dean, students are allowed to count no more than 7 credits of UW–Madison courses numbered 500 or above (earned as a UW–Madison undergraduate) toward the Ph.D. degree. Coursework should be presented to the SoP graduate dean in the first semester of enrollment for consideration. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 500 or above taken as a UW–Madison special student. Coursework should be presented to the SoP graduate dean in the first semester of enrollment for consideration. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

Non-dissertators may enroll in a maximum of 15 credits per fall/spring term and 12 credits in the summer; dissertators may enroll in a maximum of 3 credits each session (fall, spring, summer).

## PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
PHM SCI 780	Principles of Pharmaceutical Sciences	3
Select at least two of the following core courses:		
PHM SCI 768	Pharmacokinetics	
PHM SCI 786	Natural Product Synthesis, Biosynthesis and Drug Discovery	
BIOCHEM/ PHM COL-M/ ZOOLOGY 630	Cellular Signal Transduction Mechanisms	
	Research ethics/responsible conduct of research course	1
	Three additional credits from the Drug Action, Drug Delivery, or Drug Discovery elective lists are required (courses meeting this requirement are listed in the Pharmaceutical Sciences Graduate Handbook)	3
	Complete a Research course (PHM SCI 718-PHM SCI 990)	1-12
PHM SCI 931	Pharmaceutical Sciences Seminar (required every fall term during enrollment as a graduate student in the program)	1

PHM SCI 932	Pharmaceutical Sciences Seminar (required every spring during enrollment as a graduate student in the program)	1
Total Credits		10-21

Faculty advisors have the option to require additional courses beyond the minimum requirements listed above.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

No doctoral minor is required.

## OVERALL GRADUATE GPA REQUIREMENT

An overall minimum GPA of 3.0 in graduate level (300 level or higher, non-research) courses is required, unless conditions for probationary status require higher grades.

## OTHER GRADE REQUIREMENTS

Candidates will be dropped from the program if they receive more than 7 credits of grades at the BC level or lower. This applies to formal courses and research credits.

## PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

All students in the Ph.D. program are required to have a major professor/advisor through the duration of their studies. Typically a permanent advisor is found by the end of one's first semester.

All students are required to conduct a progress report meeting with their thesis committee each year after passing the preliminary exam. The progress meeting must be scheduled by mid-May and completed by the end of August of each consecutive academic year. For details on the progress report, see the PSD Student Handbook (<https://pharmacy.wisc.edu/graduate-handbook-pharmaceutical-sciences/progress-report>). For details on the composition requirements of the Ph.D. thesis committee, see Thesis Committee (<https://pharmacy.wisc.edu/graduate-handbook-pharmaceutical-sciences/thesis-committee>) in the PSD Student Handbook.

## ASSESSMENTS AND EXAMINATIONS

The preliminary examination is expected to be completed before the beginning of the third year of graduate study. For specifics regarding the Preliminary Examination's structure and requirements, see Preliminary Examination (<https://pharmacy.wisc.edu/graduate-handbook-pharmaceutical-sciences/preliminary-examination>) in the PSD Student Handbook.

A final oral defense of the dissertation is required; for more on the dissertation defense, see Ph.D. Thesis Defense (<https://pharmacy.wisc.edu/graduate-handbook-pharmaceutical-sciences/phd-thesis-defense>) in the PSD Student Handbook.

## TIME CONSTRAINTS

It is expected that Ph.D. major course requirements will be completed by the end of year two in the program.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Accepted graduate students commonly have strong scientific backgrounds, a passion for research, and significant laboratory experience. Students with undergraduate degrees in the physical or biological sciences, engineering, pharmacy, and related fields are encouraged to apply.

Please see admissions (<https://pharmacy.wisc.edu/programs/pharmsci/admissions>) on the program website for the application deadline and required supplemental materials.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate critical knowledge and in-depth understanding of principles in the student's area of expertise.
- Identify important research questions, formulate testable hypotheses, and design experiments to test those hypotheses.
- Conduct original research that contributes to the student's field of study.
- Communicate scientific knowledge and research results effectively to a range of audiences.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.

### PROFESSIONAL CONDUCT

- Apply ethical principles in conducting scientific research.

## PHARMACY, M.S.

The pharmacy master's program is a two-year, combined pharmacy administrative residency (ASHP Accredited PGY1 and PGY2) and academic degree program, which culminates in a master of science degree, emphasizing health system pharmacy management and leadership. **Applicants to the pharmacy M.S. program must be eligible for licensure as a pharmacist in the State of Wisconsin.** The program is designed to provide the resident/student with a solid academic foundation and experience in the administration of exemplary pharmaceutical services across an integrated health system.

The primary objective of the program is to develop health system pharmacy administrators who are trained and prepared to immediately assume administrative leadership positions within large, integrated health care delivery systems at the level of managers and assistant directors, and eventually as directors of pharmacy. These positions

include oversight of pharmacy operations, clinical programs, medication safety, new business development, supply chain, and so on. Residents complete patient care and management rotations in the first year of the program, and advanced administrative and elective rotations in the second year (chosen from a variety of settings, as desired by the resident). The curriculum's flexibility allows for specialization in administrative areas that best complement the student's career goals. Resident activities are varied in scope, depending on each individual's background and areas of interest.

A detailed program overview (including a description of rotations; program strengths; resident competency objectives; projects; presentation and teaching opportunities) is available here ([http://www.uwhealth.org/files/uwhealth/docs/pdf6/Admin\\_Residency\\_Program\\_Summary.pdf](http://www.uwhealth.org/files/uwhealth/docs/pdf6/Admin_Residency_Program_Summary.pdf)).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

36 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

36 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of degree coursework (19 credits out of 36 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 3 credits of graduate or Pharm.D. coursework from other institutions (so long as the credits are earned post-baccalaureate) toward the M.S. in pharmacy. The coursework should be presented to program administrators in the first semester of enrollment for evaluation. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No coursework taken as a UW-Madison undergraduate may be used to fulfill course requirements in the M.S. degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No coursework taken as a UW–Madison University Special student may be used to fulfill course requirements in the M.S. degree.

## CREDITS PER TERM ALLOWED

15 credits (fall and spring); 12 credits summer

## PROGRAM-SPECIFIC COURSES REQUIRED

Completion of a set of core courses is required. A Health System Pharmacy seminar is required each semester. Other required courses include Human Resources Management, Health System Pharmacy Data Analysis and Informatics, Healthcare Operations Management, Managing Technological and Organizational Change, Health Systems Management and Policy, Advanced Health-System Pharmacy Administration, and Advanced Independent Study (Research). Contact the graduate programs coordinator for the current curriculum or consult the program website.

Further, pharmacy residency requirements are presented at this link (<http://www.uwhealth.org/health-professionals/internships/pharmacy-administrative-residency/rotations/31908>).

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Candidates will be dropped from the program if they receive more than 7 credits of grades at the BC level or lower. This applies to formal courses, seminars, and research credits.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

The UWHC Department of Pharmacy also has a disciplinary procedure/policy for its residents; contact the graduate programs coordinator or the UWHC Department of Pharmacy for details.

## ADVISOR / COMMITTEE

Students/residents are regularly reviewed by the UW Health director of pharmacy and the program's other preceptors.

## ASSESSMENTS AND EXAMINATIONS

A master's research project is required. Contact the School of Pharmacy graduate programs coordinator or the program for more information.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Further, that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Applicants should submit through the standard Pharmacy Online Residency Centralized Application Service (PhORCAS). For details on the requirements of this application process, including supplemental information required by PhORCAS, see the area regarding "pharmacy administrative residency—applying to the program" on the UW Health website (<http://www.uwhealth.org/health-professionals/internships/pharmacy-administrative-residency/applying/31924>). Included in these instructions are the procedures one must take to apply to the UW Graduate School. **Applications must be received by the end of the first Monday in January**; the residency historically begins the third full week of June and M.S. coursework begins in early September. Applications are not reviewed at any other time during the year. **Applicants to the M.S. program must be eligible for licensure as a pharmacist in Wisconsin due to the program's pharmacy residency requirements.**

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Thorough understanding of the organization and the components of an integrated health care system as they relate to the continuum of pharmaceutical care across the health system including acute care, ambulatory care, home care, and other settings.
- Administration of pharmacy service networks as part of the integrated health system and the relationships of the components of the pharmacy regional health system (e.g.: inpatient care, retail and mail service pharmacy, managed care pharmacy programs, specialty pharmacy services, hospice care, home care and pharmacy consulting programs).
- Thorough understanding of how to design, implement, manage and improve a safe and effective medication use system. This includes an understanding of information technology and other automated systems required to support comprehensive pharmacy services across the integrated health system.
- Ability to perform technology assessment studies for new systems technology.
- Knowledge and expertise in managing drug policy including an understanding of the importance of such a program in supporting evidence-based care throughout an integrated health system.
- Role of pharmacy in conducting and supporting drug research as well as understanding principles of conducting research in administrative science and pharmacy practice.

### PROFESSIONAL CONDUCT

- Development of personal leadership qualities and business acumen essential to operate efficiently within a hospital and health system and advance the profession and practice of pharmacy.
- Development of business knowledge and skills in the following areas: communication techniques, problem identification and solving, project management, decision making, productivity management, quality methodologies, organizational design and behavior, cost/benefit analysis, technology assessment and strategic planning.

## ADDITIONAL LEARNING GOALS

- Administrative skills in the principles of supply chain management, human resource management, financial management, pharmaceutical reimbursement, revenue cycle management, narcotic control, labor relations and pharmacy regulations and law.
- Understanding the role of pharmacy in education and research as part of an academic medical center as well as the integration of education and research into practice. This involves the provision of evidence-based, patient centered medication therapy management with various members of the health care team in an interdisciplinary fashion and teaching of pharmacy students. In addition, residents will develop an understanding of the importance of public service and education in an academic medical center.
- Ability to create, promote, and market the pharmacy's role within integrated health care systems thorough understanding of medication safety standards required to ensure a safe medication use system across the integrated health system.

## SOCIAL AND ADMINISTRATIVE SCIENCES IN PHARMACY, M.S.

The graduate program in social and administrative sciences in pharmacy (SAS) provides a rigorous background in a range of disciplines critical to preparing the next generation of health services researchers. The program focuses on scientific and humanistic bases for understanding and influencing interactions involving patients, medications, pharmacists, other caregivers, and health care systems. Further, it evaluates the need for pharmacists to fulfill various roles, such as clinical practitioner, drug consultant, and drug distribution system manager, in order to meet the needs of diverse patients, providers, and organizations that utilize pharmacy services.

The program's interdisciplinary approach integrates knowledge of pharmacy and pharmaceuticals with knowledge from disciplines such as economics, sociology, psychology, management sciences, communications, education, epidemiology, law, industrial/safety engineering, ethics and history. The overall objective of the program is to prepare students to carry out independent, theory-based research leading to new knowledge and understanding of medication use and safety, patient and provider communication and behaviors, health outcomes, health care systems, and the pharmacy profession. For additional SAS faculty information, see faculty research interests on the SAS website (<http://pharmacy.wisc.edu/faculty-research/social-administrative-sciences-division/faculty-research>).

The SAS graduate program has considerable curricular flexibility and can be tailored to the interests of individual students, allowing specialization in diverse areas of emphasis. Facilitating student support is a high priority; division faculty work to ensure that students have sufficient funding support to be successful. Incoming students are provided with computing and technology resources for their learning and research endeavors. Travel funding allows students to present their research findings at national meetings. The Sonderegger Research Center (<http://www.pharmacy.wisc.edu/src>) is housed within the division.

The program maintains uniform admission requirements, M.S. and Ph.D. course and credit requirements, and procedures for monitoring student progress and program quality. The SAS graduate student handbook (<http://pharmacy.wisc.edu/handbook-social-administrative-sciences-m>

s-ph-d) provides this information in detail. See also the program brochure (<http://pharmacy.wisc.edu/sites/default/files/content/education/social-administrative-sciences-pharmacy-ms-phd/sasgradprogram.pdf>).

A dual PharmD–M.S. degree program in SAS was recently approved. The dual degree program is an opportunity for professional pharmacy students to pursue an M.S. degree in SAS while completing requirements for their professional pharmacy degree. See the School of Pharmacy's graduate programs coordinator (contact information below) for more information about this dual degree's specifics.

## POST-GRADUATE INFORMATION

Placement information for recent SAS alumni is updated yearly; see the program website (<http://pharmacy.wisc.edu/education/social-administrative-sciences-pharmacy-ms-phd/admissions/recent-grads>). SAS has a rich history of creating future pharmacy educators. Beyond academia, common career setting options are the pharmaceutical industry, managed care, contract research organizations, and consulting.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., dual Pharm.D./M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of degree coursework (at least 17 credits out of 32 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 16 credits of graduate coursework from other institutions (the student must have graduate student status on the other institution's transcript at the time the courses were taken). Such courses should be presented to SAS faculty prior to one's first graduate semester and require the review/approval of at least two SAS faculty members. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE/PROFESSIONAL

With program approval, students are allowed to count no more than 7 credits of UW–Madison courses numbered 700 or above (earned as a UW–Madison undergraduate or professional student) toward the M.S. Such courses should be presented to SAS faculty prior to one's first graduate semester and require the review/approval of at least two SAS faculty members. Note: The above does not apply to students enrolled in the dual Pharm.D.–M.S. (SAS) program.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 7 credits of coursework numbered 700 or above taken as a UW–Madison Special student. Such courses should be presented to SAS faculty prior to one's first graduate semester and require the review/approval of at least two SAS faculty members. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits (fall and spring); 12 credits summer

## PROGRAM-SPECIFIC COURSES REQUIRED

Completion of a set of core courses is required. At least 8 credits in core courses, 9 credits in methods of research and analysis, and 11 credits in specialty/advanced courses are required. See this link (<https://pharmacy.wisc.edu/programs/sas/masters-degree>) for specific M.S. curriculum information.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required for graduate-level courses (numbered 300 and above, excluding research) to receive a degree.

## OTHER GRADE REQUIREMENTS

Candidates will be dropped from the program if they receive more than 7 credits of grades at the BC level or lower. This applies to formal courses, seminars, and research credits.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good Standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

Students are required to maintain a SAS faculty member as an M.S. advisor through the duration of their studies. Students should select a permanent major professor before the end of the second semester enrolled in the program. SAS graduate faculty monitor the progress of M.S. students annually.

Composition requirements of the SAS M.S. thesis committee are presented at this link (<https://pharmacy.wisc.edu/handbook-sas/ms-degree-requirements/ms-thesis-and-examination>).

## ASSESSMENTS AND EXAMINATIONS

A formal master's thesis based on original research is required and must be defended orally. For specific details, see this link (<https://pharmacy.wisc.edu/handbook-sas/ms-degree-requirements/ms-thesis-and-examination>).

## TIME CONSTRAINTS

The SAS M.S. is designed to be completed in two years.

Master's degree students who have been absent for five or more consecutive years lose all credits that were earned before their absence. Further, that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Only candidates with an emphasis in the history of pharmacy are required to attain competence in one foreign language. Contact the School's graduate programs coordinator for more information.

## ADMISSIONS

The online application and all supplemental materials (official transcripts, three letters of recommendation, Graduate Record Exam (GRE) scores, statement of purpose for attending graduate school, resume/CV, School of Pharmacy's financial aids statement) must be received by **January 1** for consideration for matriculation in the following fall semester. **Applications are not reviewed at any other time during the year.**

A professional degree in pharmacy is helpful, but not required, for applicants to the SAS graduate program. Academic backgrounds in public health, sociology, industrial engineering, or economics, for example, are well suited for graduate study in SAS. Those with pharmacy-type work experience or a degree in a related field are invited to inquire about the compatibility of their background for admissions purposes.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate critical knowledge and in-depth understanding of principles in the core area of the program and the student's area of expertise.
- Identify important research questions, formulate testable hypotheses, and design experiments to test those hypotheses.
- Conduct original research that contributes to the student's field of study.
- Communicate, both orally and in writing, scientific knowledge and research results effectively to a range of audiences.
- Demonstrate ability to teach SAS concepts and principles to a range of audiences.

### PROFESSIONAL CONDUCT

- Apply ethical principles in conducting scientific research.



## SOCIAL AND ADMINISTRATIVE SCIENCES IN PHARMACY, PH.D.

The graduate program in social and administrative sciences in pharmacy (SAS) provides a rigorous background in a range of disciplines critical to preparing the next generation of health services researchers. The program focuses on scientific and humanistic bases for understanding and influencing interactions involving patients, medications, pharmacists, other caregivers, and health care systems. Further, it evaluates the need for pharmacists to fulfill various roles, such as clinical practitioner, drug consultant, and drug distribution system manager, in order to meet the needs of diverse patients, providers, and organizations that utilize pharmacy services.

The program's interdisciplinary approach integrates knowledge of pharmacy and pharmaceuticals with knowledge from disciplines such as economics, sociology, psychology, management sciences, communications, education, epidemiology, law, industrial/safety engineering, ethics and history. The overall objective of the program is to prepare students to carry out independent, theory-based research leading to new knowledge and understanding of medication use and safety, patient and provider communication and behaviors, health outcomes, health care systems, and the pharmacy profession. For additional SAS faculty information, see faculty research interests on the SAS website (<http://pharmacy.wisc.edu/faculty-research/social-administrative-sciences-division/faculty-research>).

The SAS graduate program has considerable curricular flexibility and can be tailored to the interests of individual students, allowing specialization in diverse areas of emphasis. Facilitating student support is a high priority; division faculty work to ensure that students have sufficient funding support to be successful. Incoming students are provided with computing and technology resources for their learning and research endeavors. Travel funding allows students to present their research findings at national meetings. The Sonderegger Research Center (<http://www.pharmacy.wisc.edu/src>) is housed within the division.

The program maintains uniform admission requirements, M.S. and Ph.D. course and credit requirements, and procedures for monitoring student progress and program quality. The SAS graduate student handbook (<http://pharmacy.wisc.edu/handbook-social-administrative-sciences-m-s-ph-d>) provides this information in detail. See also the program brochure (<http://pharmacy.wisc.edu/sites/default/files/content/education/social-administrative-sciences-pharmacy-ms-phd/sasgradprogram.pdf>).

A dual PharmD–M.S. degree program in SAS was recently approved. The dual degree program is an opportunity for professional pharmacy students to pursue an M.S. degree in SAS while completing requirements for their professional pharmacy degree. See the School of Pharmacy's graduate programs coordinator (contact information below) for more information about this dual degree's specifics.

## POST-GRADUATE INFORMATION

Placement information for recent SAS alumni is updated yearly; see the program website (<http://pharmacy.wisc.edu/education/social-administrative-sciences-pharmacy-ms-phd/admissions/recent-grads>). SAS has a rich history of creating future pharmacy educators. Beyond academia, common career setting options are the pharmaceutical industry, managed care, contract research organizations, and consulting.

## FUNDING

Prospective students should see the program website (<https://pharmacy.wisc.edu/programs/sas/tuition-financial-support>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

56 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of degree coursework (at least 29 credits out of 56 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

If accepted into the SAS Ph.D. program with a master's degree equivalent to an M.S. (SAS) degree and with program approval, students are allowed to count no more than 24 credits of graduate coursework from other institutions (the student must have graduate student status on the other institution's transcript at the time the courses were taken) towards the Ph.D. at UW–Madison. Such courses should be presented to SAS faculty prior to one's first graduate semester and require the review/approval of at least two SAS faculty members. coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits earned as a UW–Madison undergraduate may be used toward achieving the 24 credits beyond the M.S. that are required for the Ph.D. in SAS.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No credits earned as a UW–Madison Special student may be used toward achieving the 24 credits beyond the M.S. that are required for the Ph.D. in SAS.

## CREDITS PER TERM ALLOWED

Non-dissertators may enroll in a maximum of 15 credits per fall/spring term and 12 credits in the summer; dissertators may enroll in a maximum of 3 credits each session (fall, spring, summer).

## PROGRAM-SPECIFIC COURSES REQUIRED

Completion of a set of courses is required. At least 16 credits in core courses (seminar, core principles, and core methods), 15 credits in research and analysis (additional research methods, analytic techniques), and 19 credits in specialty/advanced courses is required.

See this link (<https://pharmacy.wisc.edu/programs/sas/doctoral-degree>) for specific doctoral curriculum information.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a doctoral minor. Students can complete a concentrated (Option A) or distributed (Option B) minor. Students completing Option A minors follow the requirements of the minor department. Students completing option B minors must complete a minimum of 10 credits outside their major department, reflecting a cohesive and logical combination of courses for specialization emphasis. Courses for an option B minor follow the Graduate School requirements for type, level, GPA, and timing for the minor coursework. The doctoral minor is developed and finalized by the student and faculty advisor as a plan for specialization courses within the Ph.D. program requirements. In SAS, a faculty committee composed of members of the student's preliminary examination committee approves the minor plan. The minor plan should be approved before courses qualifying for the minor are completed. Some courses in the minor plan may be completed before the plan is submitted, but at least half of the minor coursework must be completed after the minor plan is submitted and approved by the student's committee. The minor represents the theoretical foundation for the PhD and should consist of a majority of courses that are theory focused (i.e., not methods or analytical techniques); such theoretical courses should comprise all or most of the minor plan.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required for graduate-level courses (numbered 300 and above, excluding research) to receive a degree.

## OTHER GRADE REQUIREMENTS

Candidates will be dropped from the program if they receive more than 7 credits of grades at the BC level or lower. This applies to formal courses, seminars, and research credits.

## PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full-time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

All students in the Ph.D. program are required to have a major professor/advisor through the duration of their studies. Students should select a permanent major professor before the end of the second semester enrolled in the program. SAS graduate faculty monitor the progress of Ph.D. students annually.

Composition requirements of the SAS Ph.D. oral preliminary examination committee are presented at this link (<https://pharmacy.wisc.edu/handbook-sas/phd-degree-requirements/preliminary-exams>); this same committee typically also serves as the dissertation final oral defense committee.

## ASSESSMENTS AND EXAMINATIONS

Doctoral students must pass both written and oral preliminary examinations to achieve dissertator status (see this link (<https://pharmacy.wisc.edu/handbook-sas/phd-degree-requirements/preliminary-exams>)). The written preliminary examination is evaluated on a pass/fail basis. The oral preliminary examination must be completed within six months after having passed the written preliminary examination.

A dissertation and final oral defense are required. See the this link (<https://pharmacy.wisc.edu/handbook-sas/phd-degree-requirements/dissertation-final-exams>) for details.

## TIME CONSTRAINTS

A candidate for a doctoral degree who fails to take the final oral defense and deposit the dissertation within 5 years after passing the preliminary examinations may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Candidates with an emphasis in the history of pharmacy are required to achieve competence in two foreign languages (one in addition to the language acquired for the M.S. degree). Contact the School's graduate programs coordinator for more information.

## ADMISSIONS

The online application and all supplemental materials (official transcripts, three letters of recommendation, Graduate Record Exam (GRE) scores, statement of purpose for attending graduate school, resume/CV, School of Pharmacy's financial aids statement) must be received by **January 1** for consideration for matriculation in the following fall semester. **Applications are not reviewed at any other time during the year.**

A professional degree in pharmacy is helpful, but not required, for applicants to the SAS graduate program. Academic backgrounds in public health, sociology, industrial engineering, or economics, for example, are well suited for graduate study in SAS. Those with pharmacy-type work experience or a degree in a related field are invited to inquire about the compatibility of their background for admissions purposes.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate critical knowledge and in-depth understanding of principles in the core area of the program and the student's area of expertise.
- Identify important research questions, formulate testable hypotheses, and design experiments to test those hypotheses.
- Conduct original research that contributes to the student's field of study.
- Communicate, both orally and in writing, scientific knowledge and research results effectively to a range of audiences.

- Demonstrate ability to teach SAS concepts and principles to a range of audiences.

## **PROFESSIONAL CONDUCT**

- Apply ethical principles in conducting scientific research.

## PHILOSOPHY

**Administrative Unit:** Philosophy

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A., Ph.D.

**Minors and Certificates:** Doctoral Minor

The Department of Philosophy offers work leading to the doctor of philosophy with a major in philosophy.

The M.A. is granted to Ph.D. program students when they pass their preliminary examinations and become a dissertator. When a student must leave the program early and is unable to complete a Ph.D., a terminal M.A. is granted upon satisfying the department's criteria for a master's degree.

The Ph.D. degree is awarded in recognition of a successfully completed program of advanced studies in philosophy, culminating in a dissertation which represents a contribution to philosophy or to philosophical scholarship.

The Ph.D. program falls into two major stages. The first consists of work that prepares the student for admission to candidacy for the Ph.D. degree. Studies during the first stage of the program are devoted to acquiring the philosophical skills and learning needed to do philosophy in the second stage when writing a successful dissertation.

The department offers five years of support to all incoming graduate students. Support begins with the first fall semester and continues for at least nine additional semesters, provided the student makes satisfactory academic progress and carries out duties acceptably as a graduate assistant.

The department assigns a faculty member as placement officer and devotes a significant portion of staff resources to help graduates find employment.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Philosophy, Doctoral Minor (p. 604)
- Philosophy, M.A. (p. 604)
- Philosophy, Ph.D. (p. 606)

### PEOPLE

**Faculty:** Professors Shafer-Landau (chair), Brighthouse, Card, Forster, Gottlieb, Hausman, Hunt, Nadler, Shapiro, Sidelle, Sober, Vranas; Associate Professor Streiffer; Assistant Professors Bengson, Mackay, Masrour, Paul, Schechtman, Titelbaum

## PHILOSOPHY, DOCTORAL MINOR

### REQUIREMENTS

Graduate students from other fields who wish to pursue a minor in philosophy should consult with the assistant to the chair of the department. Minor candidates are required to take a minimum of three courses in philosophy for a total of at least 9 credits. Normally, at least two of these courses, for at least 5 credits, must be taken in residence on campus.

Most courses numbered 400 and above are open to minor candidates, as are graduate courses and seminars numbered 700 and above. Minor candidates who wish to enroll for independent reading should consult with the assistant to the chair; a student may be enrolled for an independent reading course only with the explicit consent of the instructor.

### PEOPLE

**Faculty:** Professors Shafer-Landau (chair), Brighthouse, Card, Forster, Gottlieb, Hausman, Hunt, Nadler, Shapiro, Sidelle, Sober, Vranas; Associate Professor Streiffer; Assistant Professors Bengson, Mackay, Masrour, Paul, Schechtman, Titelbaum

## PHILOSOPHY, M.A.

The Department of Philosophy offers work leading to the doctor of philosophy with a major in philosophy.

The M.A. is granted to Ph.D. program students when they pass their preliminary examinations and become a dissertator. When a student must leave the program early and is unable to complete a Ph.D., a terminal M.A. is granted upon satisfying the department's criteria for a master's degree.

The Ph.D. degree is awarded in recognition of a successfully completed program of advanced studies in philosophy, culminating in a dissertation which represents a contribution to philosophy or to philosophical scholarship.

The Ph.D. program falls into two major stages. The first consists of work that prepares the student for admission to candidacy for the Ph.D. degree. Studies during the first stage of the program are devoted to acquiring the philosophical skills and learning needed to do philosophy in the second stage when writing a successful dissertation.

The department offers five years of support to all incoming graduate students. Support begins with the first fall semester and continues for at least nine additional semesters, provided the student makes satisfactory academic progress and carries out duties acceptably as a graduate assistant.

The department assigns a faculty member as placement officer and devotes a significant portion of staff resources to help graduates find employment.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.A.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

33 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

21 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

30 credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 500 or above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

12 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

At least 21 credits must be earned in philosophy courses numbered between 800 and 989. The remaining credits may be earned either by transferring credits from graduate-level work (with a maximum of 9 credits) or by taking courses at the 400–900 level.

No more than one course at the 400–600 level nor more than one course at the 700 level can count toward the credit-hour requirements for the M.A.

Typically, students take 10 seminars at the 800–900 level and one 700-level seminar to satisfy this requirement.

No more than one 701 course can count toward the 33-credit-hour requirement for the M.A.

Contact the program for information on any additional required courses.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00

#### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

#### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

#### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

#### ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

#### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

#### LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

The Graduate School sets minimum requirements for admissions (<https://grad.wisc.edu/admissions/requirements>). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website (<http://philosophy.wisc.edu/graduate/apply.php>) for details.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Expert ability to think critically about arguments.
- Expert ability to interpret complex texts accurately and analyze them logically.
- Ability to communicate very precisely and concisely in both writing and in speech.
- In-depth familiarity with the history of Western philosophy and the major debates within that tradition.

### PROFESSIONAL CONDUCT

- Interpretative charity, and intellectual honesty, which includes appropriate attribution to others of their ideas, and recognition and frankness about the limitations of one's own ideas.

## PEOPLE

**Faculty:** Professors Shafer-Landau (chair), Brighouse, Card, Forster, Gottlieb, Hausman, Hunt, Nadler, Shapiro, Sidelle, Sober, Vranas; Associate Professor Streiffer; Assistant Professors Bengson, Mackay, Masrour, Paul, Schechtman, Titelbaum

## PHILOSOPHY, PH.D.

The Department of Philosophy offers work leading to the doctor of philosophy with a major in philosophy.

The M.A. is granted to Ph.D. program students when they pass their preliminary examinations and become a dissertator. When a student must leave the program early and is unable to complete a Ph.D., a terminal M.A. is granted upon satisfying the department's criteria for a master's degree.

The Ph.D. degree is awarded in recognition of a successfully completed program of advanced studies in philosophy, culminating in a dissertation which represents a contribution to philosophy or to philosophical scholarship.

The Ph.D. program falls into two major stages. The first consists of work that prepares the student for admission to candidacy for the Ph.D. degree. Studies during the first stage of the program are devoted to acquiring the philosophical skills and learning needed to do philosophy in the second stage when writing a successful dissertation.

The department offers five years of support to all incoming graduate students. Support begins with the first fall semester and continues for at least nine additional semesters, provided the student makes satisfactory academic progress and carries out duties acceptably as a graduate assistant.

The department assigns a faculty member as placement officer and devotes a significant portion of staff resources to help graduates find employment.

## FUNDING

Prospective students should see the program website ([http://philosophy.wisc.edu/graduate/financial\\_aid.php](http://philosophy.wisc.edu/graduate/financial_aid.php)) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

All 51 credits except for 3 credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

- For students seeking a dual Ph.D./J.D., 42 of 51 credits must be in graduate-level coursework.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 9 credits of coursework numbered 500 or above taken as a UW–Madison Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

Pre-dissertator status: 12 credits

Dissertator status: 3 credits

Dual Ph.D./J.D. students: 15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

At least 21 credits must be earned in philosophy courses numbered between 800 and 989. The remaining credits may be earned either by transferring credits from previous graduate-level work or by taking courses at the 400–900 level.

No more than one course at the 400–600 level nor more than two courses at the 700 level can count toward the credit-hour requirements for the Ph.D.

Typically, students take 10 seminars at the 800–900 level, two 700-level seminars, and earn the remainder of the credits by taking directed research or thesis-prep courses (e.g., PHIL 990).

In other words, the course requirements for the Ph.D. involve (a) completing the requirements for the M.A., (b) taking additional courses to reach a minimum of 51 credit hours, and (c) taking an additional seminar (700–989) at some point between the M.A. and completing the Ph.D., as part of the 51 credits.

Seminar requirement: at least 12 courses at the 500 level or above; at least 10 of these must be at the 800 or 900 level, and an additional course must be at the 700–900 level courses must be passed with a grade of B or better, except for 701, which requires a grade of S.

Ordinarily, students take at least three graduate seminars (900 level) in the major area, two history seminars, the First Year Proseminar, and three seminars in other areas of philosophy. In addition, students typically take a reading seminar (701) before advancing to candidacy. At least 9 of the 12 courses must be taken in the UW–Madison program.

History of philosophy requirement: Two of the 12 required seminars must be advanced history of philosophy courses.

No more than two courses from a previous program can be applied toward the seminar requirement.

Reading seminars: Each seminar meets with a concurrently offered reading seminar (701). Students attend all the seminar meetings and do the readings, but have a substantially lighter workload, determined by the professor before the beginning of the semester. Students may take as many 701's as they like; however, only two 701's can count toward the seminar requirement for the Ph.D. No more than two 701's can be applied to the 51-credit-hour requirement for the Ph.D.

Contact the program for information on any additional required courses.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300

or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

For admission to the Ph.D. program with full graduate standing, a student must have completed the equivalent of a B.A. with a major in philosophy. Promising students who do not meet this requirement may be admitted with deficiencies provided that they have completed at least 12 credits in philosophy. Upon entering the program, a student must consult with the assistant to the chair for selection of a major professor. The department website (<http://philosophy.wisc.edu/graduate>) contains additional information on department rules, policies, and degree requirements.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Expert ability to think critically about arguments.
- Expert ability to interpret complex texts accurately and analyze them logically.
- Ability to design curriculum for undergraduate courses in their areas of expertise and competence.

- Ability to communicate very precisely and concisely in both writing and in speech.
- In-depth familiarity with the history of Western philosophy and the major debates within that tradition.
- Ability to write a book length manuscript which constitutes an original and valuable contribution to the field.

## PROFESSIONAL CONDUCT

- Interpretative charity, and intellectual honesty, which includes appropriate attribution to others of their ideas, and recognition and frankness about the limitations of one's own ideas.
- Fosters ethical and professional conduct.

## ADDITIONAL LEARNING GOALS

- Ability to engage in high quality undergraduate instruction in their areas of expertise and competence.
- Well-equipped to pursue continuous professional development with respect to goals.

## PEOPLE

**Faculty:** Professors Shafer-Landau (chair), Brighthouse, Card, Forster, Gottlieb, Hausman, Hunt, Nadler, Shapiro, Sidelle, Sober, Vranas; Associate Professor Streiffer; Assistant Professors Bengson, Mackay, Masrour, Paul, Schechtman, Titelbaum



# PHYSICS

**Administrative Unit:** Physics

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., M.S., Ph.D.

**Degrees Offered:** M.A., M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The department offers the master of arts and master of science degrees in physics, and the doctor of philosophy degree with a major in physics.

The master of arts degree is a purely academic degree, requiring 30 credits of graduate work and passage of the qualifying examination at the master's level. It is designed to strengthen the student's physics background and enhance the opportunities for employment as a physicist or in physics education.

The master of science degree is a professional program that requires the completion of a directed master's project and thesis in the student's area of interest, 30 credits of graduate work, and passage of the qualifying examination at the master's level. It is designed to strengthen the student's background and experience in physics, and enhance the opportunities for employment as a physicist or in physics education.

The Ph.D. degree requires successful completion of advanced course work in physics, completion of a minor, and passage of the qualifying and preliminary examinations. However, the Ph.D. is primarily a research degree, awarded only upon completion of substantial original research in some subfield of physics. The program provides the background, experience, and credentials needed for employment as a professional physicist in research or education.

The research program in physics is unusually broad in scope with active experimental and theoretical research programs in astrophysics; atomic, molecular, and optical physics; biophysics; condensed matter physics; elementary particle physics; nuclear physics; particle physics theory; phenomenology; and plasma physics. This broad range of research opportunities makes the department especially attractive to beginning students who have not yet chosen a field of specialization.

Research specialties include:

## THEORETICAL PHYSICS

Astrophysics; atomic, molecular, and optical physics; condensed matter physics; cosmology; elementary particle physics; nuclear physics; phenomenology; plasmas and fusion; quantum computing; statistical and thermal physics; string theory.

## EXPERIMENTAL PHYSICS

Astrophysics; atomic, molecular, and optical physics; biophysics; condensed matter physics; cosmology; elementary particle physics; neutrino physics; experimental studies of superconductors; medical physics; nuclear physics; plasma physics; quantum computing; spectroscopy.

The Department of Physics has a diverse group of graduate students who come from many countries around the world. There are typically 150–200 graduate students in the department. Virtually all students admitted receive financial support in the form of teaching or research assistantships and fellowships.

The information on courses and examinations provided in this catalog is only a brief summary of the procedures for graduate work in the department. Entering graduate candidates are supplied with additional details when they arrive. More complete information on the graduate program, the faculty, and research groups is available at the department website (<http://www.physics.wisc.edu>).

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Physics, Doctoral Minor (p. 609)
- Physics, M.A. (p. 609)
- Physics, M.S. (p. 611)
- Physics, Ph.D. (p. 613)

## PEOPLE

**Faculty:** Professors Karle (chair), D. Anderson, Balantekin, Barger, Boldyrev, Carlsmith, Chung, Coppersmith, Dasu, Eom, Eriksson, Everett, Forest, Gilbert, Halzen, Hanson, Hashimoto, Hegna, Heinz, Herndon, Joynt, Lagally, Lawler, Lazarian, Lin, McCammon, McDermott, Onellion, Rzchowski, Saffman, Sarff, Shiu, W. Smith, Sovinec, Terry, Timbie, Vavilov, Walker, Westerhoff, Winokur, Wu, Yavuz, Zweibel; Associate Professors Egedal, Pan; Assistant Professors Arnold, Bai, Levchenko, Palladino, Vandenbroucke

## PHYSICS, DOCTORAL MINOR

### REQUIREMENTS

The minor requirement in physics for nonphysics students is 12 credits numbered above 300, each passed with a grade of B or better. The program must be approved by the chair of the Physics Minor Committee before it is completed.

## PEOPLE

**Faculty:** Professors Karle (chair), D. Anderson, Balantekin, Barger, Boldyrev, Carlsmith, Chung, Coppersmith, Dasu, Eom, Eriksson, Everett, Forest, Gilbert, Halzen, Hanson, Hashimoto, Hegna, Heinz, Herndon, Joynt, Lagally, Lawler, Lazarian, Lin, McCammon, McDermott, Onellion, Rzchowski, Saffman, Sarff, Shiu, W. Smith, Sovinec, Terry, Timbie, Vavilov, Walker, Westerhoff, Winokur, Wu, Yavuz, Zweibel; Associate Professors Egedal, Pan; Assistant Professors Arnold, Bai, Levchenko, Palladino, Vandenbroucke

## PHYSICS, M.A.

The department offers the master of arts and master of science degrees in physics, and the doctor of philosophy degree with a major in physics.

The master of arts degree is a purely academic degree, requiring 30 credits of graduate work and passage of the qualifying examination at the master's level. It is designed to strengthen the student's physics

background and enhance the opportunities for employment as a physicist or in physics education.

The master of science degree is a professional program that requires the completion of a directed master's project and thesis in the student's area of interest, 30 credits of graduate work, and passage of the qualifying examination at the master's level. It is designed to strengthen the student's background and experience in physics, and enhance the opportunities for employment as a physicist or in physics education.

The Ph.D. degree requires successful completion of advanced course work in physics, completion of a minor, and passage of the qualifying and preliminary examinations. However, the Ph.D. is primarily a research degree, awarded only upon completion of substantial original research in some subfield of physics. The program provides the background, experience, and credentials needed for employment as a professional physicist in research or education.

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## THEORETICAL PHYSICS

Astrophysics; atomic, molecular, and optical physics; condensed matter physics; cosmology; elementary particle physics; nuclear physics; phenomenology; plasmas and fusion; quantum computing; statistical and thermal physics; string theory.

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The information on courses and examinations provided in this catalog is only a brief summary of the procedures for graduate work in the department. Entering graduate candidates are supplied with additional details when they arrive. More complete information on the graduate program, the faculty, and research groups is available at the department website (<http://www.physics.wisc.edu>).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 of total 30 credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>). No 300-level courses will be counted toward the 30 credit minimum.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No coursework from other institution may count toward any graduate degree in physics.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Up to 7 credits in courses numbered 500 or above may be used to satisfy minimum degree requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of difference in tuition (between Special and graduate tuition), students are allowed to count no more than 15 credits of coursework numbered 500 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a

graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission is competitive. All applicants are reviewed and evaluated on the basis of previous academic record, three letters of recommendation, statement of purpose for graduate studies, resume, and Graduate Record Exam (GRE) general and subject scores. The physics subject GRE exam is required. For applicants whose native language is not English, the department requires a minimum score of 580 (paper-based), 237 (computer-based) or 92 (internet-based) on the Test of English as a Foreign Language (TOEFL) exam, or 7 on the International English Language Testing System (IELTS) exam. All eligible applicants with complete files are considered for teaching or research assistantships and fellowships. To be considered for admission, students must submit all application materials (including test scores) via the Graduate School electronic application site (<https://www.gradsch.wisc.edu/eapp/eapp.pl>) by December 15.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Mastery of the core physical concepts (classical mechanics, electricity and magnetism, quantum mechanics, and statistical mechanics).
- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in physics.
- Identifies sources and assembles evidence pertaining to questions or challenges in physics.
- Demonstrates understanding of the physics in an historical, social, or global context.
- Selects and/or utilizes the most appropriate methodologies and practices.
- Evaluates or synthesizes information pertaining to questions or challenges in physics.
- Communicates clearly in ways appropriate to the field of physics.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

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**Faculty:** Professors Karle (chair), D. Anderson, Balantekin, Barger, Boldyrev, Carlsmith, Chung, Coppersmith, Dasu, Eom, Eriksson, Everett, Forest, Gilbert, Halzen, Hanson, Hashimoto, Hegna, Heinz, Herndon, Joynt, Lagally, Lawler, Lazarian, Lin, McCammon, McDermott, Onellion, Rzchowski, Saffman, Sarff, Shiu, W. Smith, Sovinec, Terry, Timbie, Vavilov, Walker, Westerhoff, Winokur, Wu, Yavuz, Zweibel; Associate Professors Egedal, Pan; Assistant Professors Arnold, Bai, Levchenko, Palladino, Vandenbroucke

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The master of science degree is a professional program that requires the completion of a directed master's project and thesis in the student's area of interest, 30 credits of graduate work, and passage of the qualifying examination at the master's level. It is designed to strengthen the student's background and experience in physics, and enhance the opportunities for employment as a physicist or in physics education.

The Ph.D. degree requires successful completion of advanced course work in physics, completion of a minor, and passage of the qualifying and preliminary examinations. However, the Ph.D. is primarily a research degree, awarded only upon completion of substantial original research in some subfield of physics. The program provides the background,

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Research specialties include:

## THEORETICAL PHYSICS

Astrophysics; atomic, molecular, and optical physics; condensed matter physics; cosmology; elementary particle physics; nuclear physics; phenomenology; plasmas and fusion; quantum computing; statistical and thermal physics; string theory.

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## REQUIREMENTS

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### MASTER'S DEGREES

M.A., M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

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### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

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No coursework from other institution may count toward any graduate degree in physics.

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Up to 7 credits in courses numbered 500 or above may be used to satisfy minimum degree requirements.

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### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

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The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

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faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

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## ASSESSMENT AND EXAMINATIONS

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Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

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- Communicates clearly in ways appropriate to the field of physics.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Karle (chair), D. Anderson, Balantekin, Barger, Boldyrev, Carlsmith, Chung, Coppersmith, Dasu, Eom, Eriksson, Everett, Forest, Gilbert, Halzen, Hanson, Hashimoto, Hegna, Heinz, Herndon, Joynt, Lagally, Lawler, Lazarian, Lin, McCammon, McDermott, Onellion, Rzchowski, Saffman, Sarff, Shiu, W. Smith, Sovinec, Terry, Timbie, Vavilov, Walker, Westerhoff, Winokur, Wu, Yavuz, Zweibel; Associate Professors Egedal, Pan; Assistant Professors Arnold, Bai, Levchenko, Palladino, Vandenbroucke

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### FUNDING

Prospective students should see the program website for funding information.

### REQUIREMENTS

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### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

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No coursework from other institution may count toward any graduate degree in physics.

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### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of difference in tuition (between Special and graduate tuition), students are allowed to count no more than 15 credits of coursework numbered 500 or above taken as a UW-Madison University Special student. Coursework earned five or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

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Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

Rzchowski, Saffman, Sarff, Shiu, W. Smith, Sovinec, Terry, Timbie, Vavilov, Walker, Westerhoff, Winokur, Wu, Yavuz, Zweibel; Associate Professors Egedal, Pan; Assistant Professors Arnold, Bai, Levchenko, Palladino, Vandembroucke

## ADMISSIONS

Admission is competitive. All applicants are reviewed and evaluated on the basis of previous academic record, three letters of recommendation, statement of purpose for graduate studies, resume, and Graduate Record Exam (GRE) general and subject scores. The physics subject GRE exam is required. For applicants whose native language is not English, the department requires a minimum score of 580 (paper-based), 237 (computer-based) or 92 (internet-based) on the Test of English as a Foreign Language (TOEFL) exam, or 7 on the International English Language Testing System (IELTS) exam. All eligible applicants with complete files are considered for teaching or research assistantships and fellowships. To be considered for admission, students must submit all application materials (including test scores) via the Graduate School electronic application site (<https://www.gradsch.wisc.edu/eapp/eapp.pl>) by December 15.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Formulates and plans original research.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of physics.
- Creates research, scholarship, or performance that makes a substantive contribution to the field of physics.
- Gains a broad awareness of the status of contemporary research beyond the student's area of specialization.
- Gains a deep awareness of the status of research in the student's area of specialization.
- Advances contributions in the field of physics to society.
- Learns to engage and communicate with other research professionals.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Karle (chair), D. Anderson, Balantekin, Barger, Boldyrev, Carlsmith, Chung, Coppersmith, Dasu, Eom, Eriksson, Everett, Forest, Gilbert, Halzen, Hanson, Hashimoto, Hegna, Heinz, Herndon, Joynt, Lagally, Lawler, Lazarian, Lin, McCammon, McDermott, Onellion,

# PLANNING AND LANDSCAPE ARCHITECTURE

**Administrative Unit:** Planning and Landscape Architecture

**College/School:** College of Letters & Science

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S. in Landscape Architecture; M.S. in Urban and Regional Planning; Ph.D. in Urban and Regional Planning

**Minors and Certificates:** Doctoral Minor in Landscape Architecture; Doctoral Minor in Urban and Regional Planning

## LANDSCAPE ARCHITECTURE

The graduate program in landscape architecture at UW–Madison provides intensive research training and experience in interdisciplinary approaches to the study of landscape and real-world applications. The department offers a master of science with an emphasis on conducting original research in the form of a thesis and a master of arts based on creating evidence-based design solutions to complex landscape problems. Within both programs students will contribute to developing a scholarly foundation for the discipline of landscape architecture and related fields, and contribute information to practitioners engaged in landscape decision-making and stewardship. The department does not offer a professional master's degree (MLA).

The graduate program provides an interdisciplinary education that uses the sciences, arts and humanities to respond to current issues in the realms of food and agriculture, natural resource and cultural and environmental stewardship, human health and well-being, and community development. Most students specialize in one of two areas that reflect the research interests of the faculty: restoration ecology and ecological design, and community and urban landscape studies.

The department has well-equipped computer facilities, including CAD, GIS, and graphics software packages.

## URBAN AND REGIONAL PLANNING

The primary degree is the master of science (M.S.) in urban and regional planning (URPL). This program normally requires two academic years of full-time work plus an internship. In addition to the M.S. program, the department offers a Ph.D. program. Some double-degree master's programs are offered, and provisions have been made, in all of the department's basic programs, to serve the specific needs of students from developing countries.

The M.S. program equips students with sufficient understanding of and training in the principal tools, methods, and techniques of planning to enable them to perform effectively as junior members of planning staffs from the start of their careers; in addition, UW–Madison's program in planning emphasizes concepts, perspectives, and practices that promise to be useful not only upon graduation, but even more so in later years for graduates who reach positions of major influence and responsibility.

Although the department stresses the development of general skills and mental attitudes that are common to all planning endeavors, students are required to specialize in an area of planning that is of interest to the student.

The department seeks students with high academic qualifications and the potential to become qualified professional planners. The department

is especially interested in women and minority applicants. Since there are relatively few undergraduate planning programs in the country, students come into the field from a wide range of disciplines. In recent years, planning students have generally come from the social sciences, with geography, economics, political science, and sociology the most common undergraduate backgrounds. The range, however, runs from the arts to the sciences.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE PROFESSIONAL/CERTIFICATES

- Landscape Architecture, Doctoral Minor (p. 616)
- Landscape Architecture, M.S. (p. 616)
- Urban and Regional Planning, Doctoral Minor (p. 618)
- Urban and Regional Planning, M.S. (p. 618)
- Urban and Regional Planning, Ph.D. (p. 621)

## PEOPLE

### LANDSCAPE ARCHITECTURE

**Faculty:** Professors Harrington (chair), Howell, Silbernagel; Associate Professors Dennis, Gilmore; Assistant Professors Bart, Thorleifsdottir

### URBAN AND REGIONAL PLANNING

**Faculty:** Professors Jacobs, LaGro, Marcouiller, Ohm; Associate Professors Genskow (chair), Morales, Paulsen; Assistant Professor Gocmen

## LANDSCAPE ARCHITECTURE, DOCTORAL MINOR

## LANDSCAPE ARCHITECTURE, M.S.

The graduate program in landscape architecture at UW–Madison provides intensive research training and experience in interdisciplinary approaches to the study of landscape and real-world applications. The department offers a master of science with an emphasis on conducting original research in the form of a thesis and a master of arts based on creating evidence-based design solutions to complex landscape problems. Within both programs students will contribute to developing a scholarly foundation for the discipline of landscape architecture and related fields, and contribute information to practitioners engaged in landscape decision-making and stewardship. The department does not offer a professional master's degree (MLA).

The graduate program provides an interdisciplinary education that uses the sciences, arts and humanities to respond to current issues in the realms of food and agriculture, natural resource and cultural and environmental stewardship, human health and well-being, and community development. Most students specialize in one of two areas that reflect the research interests of the faculty: restoration ecology and ecological design, and community and urban landscape studies.

The department has well-equipped computer facilities, including CAD, GIS, and graphics software packages.



## FUNDING

Financial support for graduate students is available through research and teaching assistantships, and competitive Graduate School and departmental fellowships. Most teaching assistantships are awarded to students who already have professional landscape architectural design training and experience.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

36 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of the required credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the graduate degree.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure they are making satisfactory progress toward a degree, the Graduate School expects that students meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

A bachelor's degree is required of all prospective candidates. The department's Graduate Program Committee screens applicants on the basis of university transcripts for all previous work, three letters of recommendation, samples of creative work or writing, and a letter of intent describing how the student's graduate educational needs can be fulfilled by this program. Graduate Record Exam (GRE) scores are also required. Every applicant whose native language is not English, or whose undergraduate instruction was not in English, must provide official scores from the Test of English as a Foreign Language (TOEFL). Scores are also

acceptable from the Michigan English Language Assessment Battery (MELAB) or the International English Language Testing System (IELTS).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Be able to engage critically with the scholarship and theory of landscape architecture. (M.S.)
- Be able to demonstrate advanced critical thinking and the ability to explore ideas in depth and synthesize information with a high degree of competence. (M.S.)
- Be able to demonstrate an advanced understanding of landscape spaces, functions, and dynamics, as well as interactions between people and the built and natural environment. (M.S.)
- Be able to demonstrate a deep understanding of and the ability to critically evaluate the principles, theories, technical skills and recent research findings specific to at least one of the program's focus areas: Restoration Ecology and Ecological Design and Community and Urban Studies. (M.S.)
- Be able to design and conduct original research, and communicate the results to scholars as well as to practitioners engaged in landscape decision-making and stewardship. (M.S.)

### PROFESSIONAL CONDUCT

- Be able to describe and apply principles of ethical and professional conduct. (M.S.)

## PEOPLE

**Faculty:** Professors Harrington (chair), Howell, Silbernagel; Associate Professors Dennis, Gilmore; Assistant Professors Bart, Thorleifsdottir

## URBAN AND REGIONAL PLANNING, DOCTORAL MINOR

### REQUIREMENTS

The minor in the urban and regional planning shall consist of 12 credits of coursework taken in the department.

Courses shall be taken with those faculty who have some percent of budgeted appointment in the department (so-called core faculty).

Courses taken shall be at the 600 level and above, excluding URB R PL 699 Directed Study, and no more than 3 credits of URB R PL 999 Independent Work.

The student, in consultation with the department's minor advisor (the Ph.D. Program Committee Chair unless otherwise designated), shall select the 12 credits. To the extent possible, the student shall select a set of courses which give the student a breadth of understanding of the theory and methods of the field of urban and regional planning, and which provide some depth in an area of urban and regional planning concentration. Students should consider consulting with a member of the faculty on the selection of these courses, and if possible should secure a note of endorsement from said faculty member for their course selection.

The student shall execute a minor agreement (on a form to be provided by the Ph.D. Program Committee) specifying the courses that the student will take. On completion of all the agreed-upon courses, the student's warrant will be signed by the chair of the Ph.D. Program Committee.

A 3.5 grade point average shall be required for minor certification. If a student does not achieve this GPA in the four courses the student identifies, the student may, in consultation with the minor advisor, select additional courses, so that the student completes four courses where the average GPA is 3.5.

The Ph.D. Program Committee shall review the merits of individual requests for the application of credits from other institutions toward a minor in the urban and regional planning. The total number of credits that may be accepted in this manner will not exceed 6.

## PEOPLE

**Faculty:** Professors Jacobs, LaGro, Marcouiller, Ohm; Associate Professors Genskow (chair), Morales, Paulsen; Assistant Professor Gocmen

## URBAN AND REGIONAL PLANNING, M.S.

The department's primary degree is the master of science (M.S.) in urban and regional planning (URPL). This program normally requires two academic years of full-time work plus an internship. In addition to the M.S. program, the department offers a Ph.D. program. Some double-degree master's programs are offered, and provisions have been made, in all of the department's basic programs, to serve the specific needs of students from developing countries. The master's degree in urban and regional planning is intended primarily to prepare graduates for professional positions in government, nonprofit and community organizations and the private sector. We seek to train students with the knowledge, theories, skills and abilities to be leaders in shaping communities.

Master's degree coursework consists of 45 credits distributed among core planning skills and knowledge, an area of specialization, and elective courses. Students also gain practical experience in planning and problem solving through required internships.

The objectives of the professional masters of science degree are to:

1. Prepare students to engage in planning processes that recognize a complex, pluralistic democratic society. Students develop the capacity to work with diverse publics, across government agencies, and in private and nonprofit sectors. Planning processes include the identification of objectives, design of possible courses of action, and evaluation of alternatives.
2. Convey a set of planning literacies to enable students to perform effectively as planners in public, private or nonprofit sectors. These literacies include knowledge in the following areas:
  - Structure and function of cities and regions
  - History and theory of planning processes and practices
  - Administrative, legal and political aspects of plan-making
  - Public involvement and dispute resolution techniques
  - Research design and data analysis techniques

- Written, oral and graphic communication skills
  - Ethics of professional practice
  - Collaborative approaches to problem solving
3. Prepare students with the substantive knowledge foundation and tools, methods and techniques of planning associated with an area of specialization.

Details on administrative requirements for the degree are available in the department's *Policies and Procedures*, available on the department website or by request.

The M.S. program equips students with sufficient understanding of and training in the principal tools, methods, and techniques of planning to enable them to perform effectively as junior members of planning staffs from the start of their careers; in addition, UW–Madison's program in planning emphasizes concepts, perspectives, and practices that promise to be useful not only upon graduation, but even more so in later years for graduates who reach positions of major influence and responsibility.

Although the department stresses the development of general skills and mental attitudes that are common to all planning endeavors, students are required to specialize in an area of planning that is of interest to the student.

The department seeks students with high academic qualifications and the potential to become qualified professional planners. The department is especially interested in women and minority applicants. Since there are relatively few undergraduate planning programs in the country, students come into the field from a wide range of disciplines. In recent years, planning students have generally come from the social sciences, with geography, economics, political science, and sociology the most common undergraduate backgrounds. The range, however, runs from the arts to the sciences.

## DOUBLE DEGREE PROGRAMS

It is possible for students to pursue two master's degrees simultaneously. No more than one-fourth of the credits being offered in the requirements of one degree can be used for the requirements of any other master's degree. Special arrangements have been developed for double degrees in the following areas: public affairs, water resources management, and landscape architecture. Interested students should consult with faculty in these program areas, as well as with the department.

## FUNDING

For information about financial aid, see Financial Aid (<http://urpl.wisc.edu/admissions/financialaid>) on the department website.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

45 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (23 out of 45 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

A maximum of 21 credits are allowed from Planning Accreditation Board–accredited coursework taken at other institutions. In all other fields, 25% of credits completed up to a maximum of 11 transfer credits are allowed. Special conditions for applying prior coursework may be found in the program's Policies and Procedures (<https://urpl.wisc.edu/academics/policies>).

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Any course taken as part of an undergraduate degree (whether required or optional) may not be applied.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

The Master's Program Committee (MPC) will not accept a more than 12 credits of prior coursework taken as a UW–Madison University Special student. The MPC does not necessarily guarantee that all credits (up to 12) taken as a Special student may be applied. All courses accepted for must have a B or better. The decision as to what prior coursework may be applied will be made by the MPC on the recommendation of the student's advisor, and must be based on information indicating that the courses for which credit is given fit logically into the student's overall program.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
URB R PL 741	Introduction to Planning	3
URB R PL/ SOC WORK 721	Methods of Planning Analysis	3
URB R PL 781	Planning Thought and Practice	3
URB R PL 833	Planning and the Legal System	3
URB R PL 590	Contemporary Topics in Urban and Regional Planning	1-3
URB R PL 912	Planning Workshop	3

Select one of the following:

URB R PL 601	Site Planning
URB R PL 731	Introduction to Regional Planning
URB R PL/ECON/ PUB AFFR 734	Regional Economic Problem Analysis
URB R PL 751	Introduction to Financial Planning

URB R PL 761	Central City Planning: Issues and Approaches
URB R PL/ CIV ENGR 839	Land Use and Communication Systems Planning
URB R PL 841	Urban Functions, Spatial Organization and Environmental Form
URB R PL 844	Housing and Public Policy

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

In addition to Graduate School requirements, the Department of Urban and Regional Planning requires that all core courses and all courses in a student's area of specialization (other than research credits) be taken on a graded (i.e., not satisfactory/unsatisfactory basis.)

In all core courses and all courses in a student's area of specialization, a minimum grade of BC is considered satisfactory. Grades of C or below in core and specialization courses may not be counted toward degree requirements, but are still counted in the cumulative GPA. If a student receives a grade of C or below in a department required core course, the student must retake the course and achieve a satisfactory grade.

In elective courses, a grade of C or above is considered satisfactory.

Any course in which a student receives a grade of D or F may not be used to satisfy any department graduation requirements. However, these courses will still be counted in the cumulative GPA.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status. To the extent possible, students admitted on probation are encouraged to take core courses as a part of their first semester schedule. In all other matters, students admitted on probation are subject to the same standards and requirements as students admitted in full standing (e.g. residency requirements, satisfactory student performance, minimum grades in core courses [BC], and so forth).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

Student should meet regularly with the advisor to plan academic career. The advisor is required to approve and sign the plan of study form, which is then submitted to the graduate coordinator prior to the student being allowed to graduate.

## ASSESSMENTS AND EXAMINATIONS

To obtain a master of science degree in urban and regional planning, a student must be able to demonstrate a high level of competency in the theories, methods, applications, and ethics of planning. Students must demonstrate competency over the broad field of planning in general,

as well as within an area of specialization as defined by the student, in consultation with a faculty advisor.

For information on competency requirement options, including details regarding a master's thesis or a professional project, see the program's Policies and Procedures (<https://urpl.wisc.edu/academics/policies>).

## TIME CONSTRAINTS

The master's program takes two full years of study.

## LANGUAGE REQUIREMENTS

Prospective students whose native language is not English must also provide evidence of English language proficiency. A TOEFL score of 600 (paper-based) or above typically indicates an ability to successfully meet the written and spoken communication requirements of graduate level courses.

## ADMISSIONS

Application for admission to the department consists of the following materials: the online application, official transcripts of all undergraduate and graduate work, statement of purpose (applicants should submit a thoughtful, reflective one- or two-page statement discussing reasons for going into planning; applicants with an interest in a particular concentration should discuss this); and three references from people familiar with the applicant's academic and/or professional work. The Graduate Record Exam (GRE) is required for M.S. admission and Ph.D. admission.

Besides the general requirements for admission to the M.S. program, there are two additional requirements unique to the Ph.D. program. First, applicants to the Ph.D. program are expected to have a master's degree in planning or a related field. Second, because planning is a practice-oriented field, applicants are expected to have completed at least one year of full-time experience as a professional planner. The Ph.D. program is flexible and is intended to appeal to individuals from diverse academic backgrounds. Therefore, it is possible to be admitted without having met the professional practice requirements. Deficiencies may be made up once a student is in the program.

A student must have an URPL academic sponsor in order to be admitted into the Ph.D. program. Before final admission decisions are made, student applications are circulated among the faculty. Only when a faculty member agrees to serve as an academic sponsor for an admissible candidate is a final admission decision made. The sponsor is the student's academic advisor, and it is expected that the sponsor will become the chair of the student's Ph.D. committee.

In reviewing applications, the department gives extra weight to planning-related work, such as Peace Corps or professional planning experience. The department also considers graduate coursework, even if it is in another field. If students have such experience, it should be stressed in the application.

The success of international students enrolled in the program depends heavily on a good working knowledge of English. Prospective applicants who do not feel comfortable using the English language are strongly urged to consider further language study before applying for admission.

All applicants are required to have an introductory-level course in statistics. This requirement may be met by taking an introductory course, for no graduate credit, during the student's first semester of study.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- **General Planning Knowledge:** comprehension, representation, and use of ideas and information in the planning field, including appropriate perspectives from history, social science, and the design professions.
- **Purpose and Meaning of Planning:** appreciation of why planning is undertaken by communities, cities, regions, and nations, and the impact planning is expected to have.
- **Planning Theory:** appreciation of the behaviors and structures available to bring about sound planning outcomes.
- **Planning Law:** appreciation of the legal and institutional contexts within which planning occurs.
- **Human Settlements and History of Planning:** understanding of the growth and development of places over time and across space.
- **The Future:** understanding of the relationships between past, present, and future in planning domains, as well as the potential for methods of design, analysis, and intervention to influence the future.
- **Global Dimensions of Planning:** appreciation of interactions, flows of people and materials, cultures, and differing approaches to planning across world regions.
- **Planning Skills:** use and application of knowledge to perform specific tasks required in the practice of planning.
- **Research:** tools for assembling and analyzing ideas and information from prior practice and scholarship, and from primary and secondary sources.
- **Written, Oral, and Graphic Communication:** ability to prepare clear, accurate and compelling text, graphics and maps for use in documents and presentations.
- **Quantitative and Qualitative Methods:** data collection, analysis and modeling tools for forecasting, policy analysis, and design of projects and plans.
- **Plan Creation and Implementation:** integrative tools useful for sound plan formulation, adoption, and implementation and enforcement.
- **Planning Process Methods:** tools for stakeholder involvement, community engagement, and working with diverse communities.
- **Leadership:** tools for attention, formation, strategic decision-making, team building, and organizational/community motivation.
- **Values and Ethics:** Values inform ethical and normative principles used to guide planning in a democratic society. The program shall appropriately incorporate issues of diversity and social justice into all required courses of the curriculum, including:
  - **Professional Ethics and Responsibility:** appreciation of key issues of planning ethics and related questions of the ethics of public decision-making, research, and client representation (including principles of the AICP Code of Ethics and other related principles, as appropriate).
  - **Governance and Participation:** appreciation of the roles of officials, stakeholders, and community members in planned change.
  - **Sustainability and Environmental Quality:** appreciation of natural resource and pollution control factors in planning, and understanding of how to create sustainable futures.

- **Growth and Development:** appreciation of economic, social, and cultural factors in urban and regional growth and change.

### PROFESSIONAL CONDUCT

- **Values and Ethics:** Values inform ethical and normative principles used to guide planning in a democratic society. The program shall appropriately incorporate issues of diversity and social justice into all required courses of the curriculum, including:
  - **Professional Ethics and Responsibility:** appreciation of key issues of planning ethics and related questions of the ethics of public decision-making, research, and client representation (including principles of the AICP Code of Ethics and other related principles, as appropriate).
  - **Governance and Participation:** appreciation of the roles of officials, stakeholders, and community members in planned change.
  - **Sustainability and Environmental Quality:** appreciation of natural resource and pollution control factors in planning, and understanding of how to create sustainable futures.
- **Growth and Development:** appreciation of economic, social, and cultural factors in urban and regional growth and change.

### PEOPLE

**Faculty:** Professors Jacobs, LaGro, Marcouiller, Ohm; Associate Professors Genskow (chair), Morales, Paulsen; Assistant Professor Gocmen

### URBAN AND REGIONAL PLANNING, PH.D.

The Ph.D. is open to a limited number of quality students who intend to teach, or do research in a university, in an independent research agency, or in large planning organizations.

Generally, students spend two years of full-time coursework before being advanced to candidacy, and an additional one to two years in preparation and defense of a dissertation. Details on administrative requirements for the degree are available in the department's *Policies and Procedures*, available on the department website or by request.

Although the department stresses the development of general skills and mental attitudes that are common to all planning endeavors, students are required to specialize in an area of planning that is of interest to the student.

The department seeks students with high academic qualifications and the potential to become qualified professional planners. The department is especially interested in women and minority applicants. Since there are relatively few undergraduate planning programs in the country, students come into the field from a wide range of disciplines. In recent years, planning students have generally come from the social sciences, with geography, economics, political science, and sociology the most common undergraduate backgrounds. The range, however, runs from the arts to the sciences.

## FUNDING

For information about financial aid, see Financial Aid (<http://urpl.wisc.edu/admissions/financialaid>) on the department website.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 out of 51 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Requests for prior coursework to be applied to credit requirements should be submitted to the PhD Committee for evaluation. The committee may approve up to a maximum of 18 credits of prior coursework toward program requirements. No graduate work taken at other institutions counts toward the Graduate School minimum graduate credit requirement.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from any undergraduate degree may be applied toward the Ph.D. program.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

A maximum of 15 credits may be applied from the UW–Madison University Special career; requests for prior coursework to be applied to credit requirements should be submitted to the Ph.D. committee for evaluation.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

All doctoral students are required to complete three courses (9 credits) on the structure and processes of cities and regions. These courses

shall cover the nature of urban and regional development processes over time and the impact of urban and regional development on the social, economic, environmental, institutional, and physical structure of cities and regions. They should also cover the response of federal, state and local governments to the issues and problems generated by such development and the planner's role in developing public policy and programs to deal with those problems and issues.

Courses satisfying the requirement for this component of doctoral studies must be approved by the student's Ph.D. advisor and then by the Ph.D. program committee, and shall be recorded on a form provided by the committee. Courses satisfying this requirement shall be drawn from a list provided by the Ph.D. program committee.

For more information please reference the program's Policies and Procedures (<http://urpl.wisc.edu/academics/URPL%20PHD%20POLICIES%20May%201%202013.pdf>).

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Because of the interdisciplinary nature of planning, the department requires all Ph.D. candidates to fulfill the requirements of a minor field. The purpose of the Minor field requirement is to supplement and support the student's program of study in the major field. There are two options that can be pursued for the minor. Option A requires a minimum of 10 credits in a single department/major field of study. Selection of this option requires the approval of the minor department under the guidelines of that department and on forms developed for that purpose by the selected department. Option B requires a minimum of 10 credits in one or more departments and can include coursework in URPL. Selection of this option requires the approval of the department's Ph.D. program committee. Forms for the filing of Option B minors are available from the Ph.D. program committee.

Ph.D. students and their advisers are responsible for filing copies of executed minor agreements with the Ph.D. program committee. The minor field requirement must be satisfied prior to filing the warrant for the preliminary examination.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

The minimum average GPA in courses satisfying the Structure and Processes of Cities and Regions requirement shall be 3.5. If a student does not achieve this GPA in the three courses s/he identifies, they may continue to take courses (within the general departmental Ph.D. program policies of how long a student may be a pre-dissertator) from the list provided until they have three courses where their average GPA is 3.5.

### PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

### ADVISOR / COMMITTEE

All students are required to conduct a yearly progress report meeting with their thesis committee after passing the preliminary examination.

## ASSESSMENTS AND EXAMINATIONS

The department administers three preliminary field examinations. The purpose of the preliminary examinations is to satisfy the department that the student is knowledgeable about the central theoretical and methodological perspectives common to the field of planning, and has sufficient knowledge about the design and conduct of research to undertake the dissertation.

For more information concerning the preliminary exams, see the program's Policies and Procedures (<http://urpl.wisc.edu/academics/URPL%20PHD%20POLICIES%20May%201%202013.pdf>).

## TIME CONSTRAINTS

All courses for the Structure and Processes of Cities and Regions requirement must be taken and successfully completed within the doctoral student's first five semesters (i.e., two and one-half academic years) in the Ph.D. program. This coursework requirement must be met before the student is advanced to candidacy (awarded dissertator, ABD status).

## LANGUAGE REQUIREMENTS

Prospective students whose native language is not English must also provide evidence of English language proficiency. A TOEFL score of 600 (paper-based) or above typically indicates an ability to successfully meet the written and spoken communication requirements of graduate level courses, the department's preliminary examinations, and the dissertation.

## ADMISSIONS

Application for admission to the department consists of the following materials: the online application, official transcripts of all undergraduate and graduate work, statement of purpose (applicants should submit a thoughtful, reflective one- or two-page statement discussing reasons for going into planning; applicants with an interest in a particular concentration should discuss this; applicants with planning or planning-related experience should include this), and three references from people familiar with the applicant's academic and/or professional work. The Graduate Record Exam (GRE) is required for M.S. admission and Ph.D. admission.

Besides the general requirements for admission to the M.S. program, there are two additional requirements unique to the Ph.D. program. First, applicants to the Ph.D. program are expected to have a master's degree in planning or a related field. Second, because planning is a practice-oriented field, applicants are expected to have completed at least one year of full-time experience as a professional planner. The Ph.D. program is flexible and is intended to appeal to individuals from diverse academic backgrounds. Therefore, it is possible to be admitted without having met the professional practice requirements. Deficiencies may be made up once a student is in the program.

A student must have an URPL academic sponsor in order to be admitted into the Ph.D. program. Before final admission decisions are made, student applications are circulated among the faculty. Only when a faculty member agrees to serve as an academic sponsor for an admissible candidate is a final admission decision made. The sponsor is the student's academic advisor, and it is expected that the sponsor will become the chair of the student's Ph.D. committee.

In reviewing applications, the department gives extra weight to planning-related work, such as Peace Corps or professional planning experience. The department also considers graduate coursework, even if it is in

another field. If students have such experience, it should be stressed in the application.

The success of international students enrolled in the program depends heavily on a good working knowledge of English. Prospective applicants who do not feel comfortable using the English language are strongly urged to consider further language study before applying for admission.

All applicants are required to have an introductory-level course in statistics. This requirement may be met by taking an introductory course, for no graduate credit, during the student's first semester of study.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### PROGRAM-SPECIFIC KNOWLEDGE LEARNING GOALS FOR THE PH.D. IN URBAN AND REGIONAL PLANNING

- Students will acquire and demonstrate knowledge about the professional field of planning, as exemplified in the accreditation guidelines for the master's program in urban and regional planning and the Planning Accreditation Board. These include knowledge about: the purpose and meaning of planning, planning history, planning theory, planning law, the structure and function of cities and regions, and global dimensions of planning. Students demonstrate this knowledge through entrance requirements (a master's degree in planning or acceptable cognate field), through completion of coursework, and through completion of preliminary examinations in planning theory, planning methods, and planning specialization.
- Students will acquire and demonstrate knowledge about the role and use of planning theories in both practice and research, including the historical development of planning theory, major theoretical approaches within planning, and the application of theories from other disciplines as applied to planning. Students demonstrate this knowledge through coursework and completion of a planning theory preliminary examination.
- Students will acquire and demonstrate knowledge of social science research methods, including research design, data collection, and quantitative and qualitative methods used in planning research. Students demonstrate knowledge through completion of graduate coursework in research methods and through completion of a research design and methods preliminary examination.
- Students will acquire and demonstrate knowledge of a substantive research and practice field within planning. Students demonstrate specialized knowledge in one of the major fields within planning through completion of coursework and through a research-specialization preliminary examination.

#### PROGRAM-SPECIFIC SKILLS LEARNING GOALS FOR THE PH.D. IN URBAN AND REGIONAL PLANNING

- Students will acquire and demonstrate skills in conducting academic research and scholarly inquiry in the field of urban and regional planning, including ability to summarize and critique extant research, ability to develop a research proposal, skills in seeking funding, skills in completion of research projects, and skills in written and oral presentation of research findings.
- Students will acquire and demonstrate specialized skills in research for their chosen major field within planning. This will include skills in particular research methods and data analysis specific to their chosen field within planning.

- Students will acquire and demonstrate general knowledge about planning suitable to teaching master's-level planning students in accredited programs. Students will acquire and demonstrate specific knowledge about their chosen field of specialization within planning.
- Students will acquire and/or demonstrate competence and experience in the professional practice of planning. Students demonstrate this skill through the requirement of previous professional work experience within the field of planning.

## **PROFESSIONAL CONDUCT**

### **PROGRAM-SPECIFIC PROFESSIONAL CONDUCT LEARNING GOALS FOR THE PH.D. IN URBAN AND REGIONAL PLANNING**

- Students will acquire and demonstrate knowledge of planning values and planning ethics, as exemplified in the accreditation guidelines for the master's program in urban and regional planning and the Planning Accreditation Board. This would also include awareness of rules of ethical professional conduct as exemplified in the Code of Ethics of the American Institute of Certified Planners.
- Students will demonstrate and be held to the highest standards of academic citation and attribution in all their coursework and published work.
- Students will demonstrate understanding of professional conduct through required professional work experience in planning.
- Students will be given opportunities for training and experience in classroom teaching, presentation of research at academic conferences, and development of research proposals for funding agencies.
- Students will demonstrate ethics and values consistent with the "Wisconsin brand" of urban and regional planning, which includes participation, transparency in governance, environmental protection and social justice.

## **PEOPLE**

**Faculty:** Professors Jacobs, LaGro, Marcouiller, Ohm; Associate Professors Genskow (chair), Morales, Paulsen; Assistant Professor Gocmen



# PLANT PATHOLOGY

**Administrative Unit:** Plant Pathology

**College/School:** College of Agricultural and Life Sciences

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The discipline of plant pathology is directed toward understanding and solving disease problems of plants. The field is broad and complex, integrating disciplines as varied as molecular biology, genetics, cell biology, organismal biology, population and community ecology, meteorology, statistics, computer science, chemistry, and physics. Plant pathology encompasses basic and applied research, employs both model systems and economically important plants, and requires both laboratory and field experimentation. Active research programs in the department encompass this full spectrum of questions and approaches, including research on biological control, virology, nematology, fungal genetics, tissue culture, soil microbiology and ecology, forest pathology, bacterial plant pathogens, molecular biology of parasite–host interactions, microbial ecology, epidemiology, and integrated disease management strategies.

The graduate program in plant pathology educates students in the science of plant pathology and prepares them for successful careers. Students develop the following skills required to meet diverse professional situations: excellence in research, breadth and depth in plant pathology, breadth in an allied field, strong critical and analytical thinking skills, and effective communication skills. Students become sufficiently knowledgeable in all aspects of plant pathology to identify key research questions, recognize significant discoveries, and think analytically about interpretation of data.

The level of proficiency in specific areas will vary with the student's research area and career goals, and will be appropriate to the student's degree program (M.S. or Ph.D.). Specific areas of proficiency addressed by the Ph.D. curriculum include etiology, diagnosis, and management of plant disease; ecology and epidemiology; genetics and physiology of plant–microbe interactions; and organismal biology. Ph.D. students may elect an optional professional development experience as part of their curriculum. Graduates of the program attain positions in teaching, research in academic positions, government services, industry, extension services, and private practice.

The program is comprised of about 100 faculty members, graduate students, and research and support staff. It is housed in an eight-story wing of Russell Laboratories, a teaching and research facility on the UW–Madison campus, which is surrounded by other facilities that are also devoted to biological research. Russell Labs, together with the extensive research facilities available on the rest of the UW–Madison campus and at field research stations throughout Wisconsin, provide a rich and comprehensive environment for research and graduate studies in all branches of plant pathology.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Plant Pathology, Doctoral Minor (p. 625)
- Plant Pathology, M.S. (p. 625)

- Plant Pathology, Ph.D. (p. 627)

## PEOPLE

**Faculty:** Professors McManus (chair), Ahlquist, Allen, Bent, Charkowski, Clayton, Havey, Jiang, Kaeppler, Keller, MacGuidwin, Rouse, Yu; Associate Professors Ane, Barak, Gevens, Groves, Jansky; Assistant Professors Kabbage, Koch, Lankau, Rakotondrafara, Silva, Smith

## PLANT PATHOLOGY, DOCTORAL MINOR

### REQUIREMENTS

Ph.D. candidates in other majors seeking a doctoral minor in plant pathology must complete a minimum of 9 graduate-level course credits in plant pathology at UW–Madison, while enrolled in a graduate program, and have a plant pathology faculty member serve as the minor professor on their research committees (oral preliminary exam committee and final exam committee). Contact the department for details.

## PEOPLE

**Faculty:** Professors McManus (chair), Ahlquist, Allen, Bent, Charkowski, Clayton, Havey, Jiang, Kaeppler, Keller, MacGuidwin, Rouse, Yu; Associate Professors Ane, Barak, Gevens, Groves, Jansky; Assistant Professors Kabbage, Koch, Lankau, Rakotondrafara, Silva, Smith

## PLANT PATHOLOGY, M.S.

The discipline of plant pathology is directed toward understanding and solving disease problems of plants. The field is broad and complex, integrating disciplines as varied as molecular biology, genetics, cell biology, organismal biology, population and community ecology, meteorology, statistics, computer science, chemistry, and physics. Plant pathology encompasses basic and applied research, employs both model systems and economically important plants, and requires both laboratory and field experimentation. Active research programs in the department encompass this full spectrum of questions and approaches, including research on biological control, virology, nematology, fungal genetics, tissue culture, soil microbiology and ecology, forest pathology, bacterial plant pathogens, molecular biology of parasite–host interactions, microbial ecology, epidemiology, and integrated disease management strategies.

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The level of proficiency in specific areas will vary with the student's research area and career goals, and will be appropriate to the student's

degree program (M.S. or Ph.D.). Specific areas of proficiency addressed by the Ph.D. curriculum include etiology, diagnosis, and management of plant disease; ecology and epidemiology; genetics and physiology of plant-microbe interactions; and organismal biology. Ph.D. students may elect an optional professional development experience as part of their curriculum. Graduates of the program attain positions in teaching, research in academic positions, government services, industry, extension services, and private practice.

The program is comprised of about 100 faculty members, graduate students, and research and support staff. It is housed in an eight-story wing of Russell Laboratories, a teaching and research facility on the UW-Madison campus, which is surrounded by other facilities that are also devoted to biological research. Russell Labs, together with the extensive research facilities available on the rest of the UW-Madison campus and at field research stations throughout Wisconsin, provide a rich and comprehensive environment for research and graduate studies in all branches of plant pathology.

## FUNDING

The department offers stipends to the most highly qualified applicants, and in-course students are funded throughout their programs by research assistantships, fellowships, or traineeships. The department nominates outstanding students for external fellowships, and supports and assists students who apply for scholarships and other forms of financial support.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS : GRADUATE WORK FROM OTHER INSTITUTIONS

With M.S. committee approval and Academic Affairs Committee approval, students are allowed to count no more than 14 credits of graduate coursework from other institutions. Coursework earned five or more

years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

Students may count up to 7 credits of coursework numbered 300 level or above upon approval of the M.S. committee and the Academic Affairs Committee. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With M.S. committee approval and Academic Affairs Committee approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

9 credits of plant pathology must include PL PATH 300 Introduction to Plant Pathology (or equivalent), must include at least 1 credit of PL PATH 875 Special Topics, must include 1 credit of PL PATH 923 Seminar. The remaining 21 credits of electives can include up to 15 credits of PL PATH 990 Research.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Students who are admitted to the department must meet the Graduate School requirements, including completion of a bachelor's degree which typically consists of courses in biology, chemistry, physics, and math. If foundation course requirements have not been fulfilled before matriculation, they must be completed as early as possible in the course of study. Successful applicants typically exceed the minimum requirement of a 3.0 GPA (on a 4.0 scale); exceed the minimum required Test of English as a Foreign Language (iTOEFL) score of 92, or a 7 on the International English Language Testing System (IELTS) exam (international applicants); perform well on the Graduate Record Exam (GRE); and articulate a strong interest in the discipline in their application. Prior research experience is an asset for any applicant, and letters of recommendation from research advisors are viewed as one of the most useful means of evaluating applications.

The application deadline for the fall semester is the preceding January 2. Applications received after that date will be reviewed, but they are disadvantaged for admission and financial support.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate an understanding of the basic biology of microorganisms that are symbiotic with plants including fungi, bacteria, viruses, oomycetes, and nematodes.
- Demonstrate a basic understanding of: a. the basic processes of pathogenesis, plant defense, and defense circumvention at the molecular, genetic and physiological level for each of the major groups of plant pathogens and other plant associated microorganisms. b. the etiology, ecology, and epidemiology of economically significant diseases caused by the major groups of plant pathogens and be able to apply the understanding from a. and/ or b. above in research.
- Conduct project related to the discipline of Plant Pathology that requires specifying a problem, designing and conducting experiments, analyzing the resulting data, and reporting results/ solutions.

### PROFESSIONAL CONDUCT

- Convey scientific knowledge to fellow scientists in a variety of formats

## PEOPLE

**Faculty:** Professors McManus (chair), Ahlquist, Allen, Bent, Charkowski, Clayton, Havey, Jiang, Kaeppeler, Keller, MacGuidwin, Rouse, Yu; Associate Professors Ane, Barak, Gevens, Groves, Jansky; Assistant Professors Kabbage, Koch, Lankau, Rakotondrafara, Silva, Smith

## PLANT PATHOLOGY, PH.D.

The discipline of plant pathology is directed toward understanding and solving disease problems of plants. The field is broad and complex, integrating disciplines as varied as molecular biology, genetics, cell biology, organismal biology, population and community ecology, meteorology, statistics, computer science, chemistry, and physics. Plant pathology encompasses basic and applied research, employs both model systems and economically important plants, and requires both laboratory and field experimentation. Active research programs in the department encompass this full spectrum of questions and approaches, including research on biological control, virology, nematology, fungal genetics, tissue culture, soil microbiology and ecology, forest pathology, bacterial plant pathogens, molecular biology of parasite–host interactions, microbial ecology, epidemiology, and integrated disease management strategies.

The graduate program in plant pathology educates students in the science of plant pathology and prepares them for successful careers. Students develop the following skills required to meet diverse professional situations: excellence in research, breadth and depth in plant pathology, breadth in an allied field, strong critical and analytical thinking skills, and effective communication skills. Students become sufficiently knowledgeable in all aspects of plant pathology to identify key research questions, recognize significant discoveries, and think analytically about interpretation of data.

The level of proficiency in specific areas will vary with the student's research area and career goals, and will be appropriate to the student's degree program (M.S. or Ph.D.). Specific areas of proficiency addressed by the Ph.D. curriculum include etiology, diagnosis, and management of plant disease; ecology and epidemiology; genetics and physiology of plant–microbe interactions; and organismal biology. Ph.D. students may elect an optional professional development experience as part of their curriculum. Graduates of the program attain positions in teaching, research in academic positions, government services, industry, extension services, and private practice.

The program is comprised of about 100 faculty members, graduate students, and research and support staff. It is housed in an eight-story wing of Russell Laboratories, a teaching and research facility on the UW–Madison campus, which is surrounded by other facilities that are also devoted to biological research. Russell Labs, together with the extensive research facilities available on the rest of the UW–Madison campus and at field research stations throughout Wisconsin, provide a rich and comprehensive environment for research and graduate studies in all branches of plant pathology.

## FUNDING

The department offers stipends to the most highly qualified applicants, and in-course students are funded throughout their programs by research

assistantships, fellowships, or traineeships. The department nominates outstanding students for external fellowships, and supports and assists students who apply for scholarships and other forms of financial support.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### DOCTORAL DEGREES

Ph.D.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

For well-prepared advanced students, the program may accept prior graduate coursework from other institutions toward the minimum graduate degree credit and minimum graduate coursework (50%) requirement. The minimum graduate residence credit requirement can be satisfied only with courses taken as a graduate student at UW–Madison. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

For well-prepared advanced students, the program may decide to accept up to 7 credits numbered 300 or above completed at UW–Madison toward fulfillment of minimum degree and minor credit requirements. This work would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

The program may decide to accept up to 15 University Special student credits as fulfillment of the minimum graduate residence, graduate degree, or minor credit requirements on occasion as an exception (on a case-by-case basis). UW–Madison coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework

earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

#### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00

#### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

#### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

#### ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

#### ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

#### TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Students who are admitted to the department must meet the Graduate School requirements, including completion of a bachelor's degree which typically consists of courses in biology, chemistry, physics, and math. If foundation course requirements have not been fulfilled before matriculation, they must be completed as early as possible in the course of study. Successful applicants typically exceed the minimum requirement of a 3.0 GPA (on a 4.0 scale); exceed the minimum required Test of English as a Foreign Language (iTOEFL) score of 92, or a 7 on the International English Language Testing System (IELTS) exam (international applicants); perform well on the Graduate Record Exam (GRE); and articulate a strong interest in the discipline in their application. Prior research experience is an asset for any applicant, and letters of recommendation from research advisors are viewed as one of the most useful means of evaluating applications.

The application deadline for the fall semester is the preceding January 2. Applications received after that date will be reviewed, but they are disadvantaged for admission and financial support.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrate an understanding of the basic processes of pathogenesis, plant defense, and defense circumvention at the molecular, genetic and physiological level for each of the major groups of plant pathogens and other plant associated microorganisms.
- Demonstrate an understanding of the basic biology of microorganisms that are symbiotic with plants including fungi, bacteria, viruses, oomycetes, and nematodes.
- Demonstrate an understanding of the etiology, ecology, and epidemiology of economically significant diseases caused by the major groups of plant pathogens.
- Construct disease management strategies for the different groups of important plant pathogens.
- Demonstrate excellent problem solving skills and a deep conceptual understanding of the science of Plant Pathology.

### PROFESSIONAL CONDUCT

- Convey knowledge in a variety of formats to diverse audiences including the public, students, and fellow scientists.

## PEOPLE

**Faculty:** Professors McManus (chair), Ahlquist, Allen, Bent, Charkowski, Clayton, Havey, Jiang, Kaeppler, Keller, MacGuidwin, Rouse, Yu; Associate Professors Ane, Barak, Gevens, Groves, Jansky; Assistant Professors Kabbage, Koch, Lankau, Rakotondrafara, Silva, Smith

## POLITICAL SCIENCE

**Administrative Unit:** Political Science

**College/School:** College of Letters & Science

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.A., Ph.D.

**Minors and Certificates:** Doctoral Minor

The Department of Political Science offers graduate study leading to the doctor of philosophy in political science. The department accepts students only for the Ph.D. program, but a master's degree can be obtained en route to the Ph.D.

The Ph.D. is earned through a combination of coursework and dissertation. The program is designed to provide students with both a general training in political science and the opportunity to specialize in their areas of interest.

The subfields of political science found in the department are American politics (<http://polisci.wisc.edu/fields/american-politics>), comparative politics (<http://polisci.wisc.edu/fields/comparative>), political theory and philosophy (<http://polisci.wisc.edu/fields/political-theory>), international relations (<http://polisci.wisc.edu/fields/ir>), and political methodology (<http://polisci.wisc.edu/fields/political-methodology>). The department has a national and international reputation for the high quality of its faculty and for the diversity of their approaches and interests; the department has long been known for both collegiality and acceptance of varied approaches to the study of politics. Political science shares faculty with the Robert M. La Follette School of Public Affairs (<http://www.lafollette.wisc.edu>), the Law School (<http://www.law.wisc.edu>), and the Department of Gender and Women's Studies (<http://womenstudies.wisc.edu>). The presence of programs and centers such as the African Studies Program (<http://africa.wisc.edu>), the Center for European Studies (<http://ces.wisc.edu>), the Center for Jewish Studies (<http://jewishstudies.wisc.edu>), the Center for Russia, East Europe, and Central Asia (CREECA) (<http://www.creeca.wisc.edu>), Integrated Liberal Studies (<http://ils.wisc.edu>), the International Studies Major (<http://www.ismajor.wisc.edu>), Latin American, Caribbean and Iberian Studies (<http://www.lacis.wisc.edu>), and others is also beneficial to graduate students, providing opportunities for the advancement of interdisciplinary approaches in student research.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Political Science, Doctoral Minor (p. 630)
- Political Science, M.A. (p. 630)
- Political Science, Ph.D. (p. 632)

## PEOPLE

**Faculty:** Professors Burden, Canon (chair), Cramer, Ewig, Gehlbach, Hendley, Herrera, Kydd, Marquez, Martin, Mayer, Owens, Pevehouse, Schatzberg, Schweber, Shafer, Straus, Tripp, Weimer, Yackee, Zumbrunnen; Associate Professors Avramenko, Copelovitch, Kapust, Kinsella, Ringe, Shelef; Assistant Professors Bhavnani, Lindsay, Lupu, Powell, Renshon, Rousseliere, Schwarze, Simmons, Weeks, Tahk

## POLITICAL SCIENCE, DOCTORAL MINOR

### REQUIREMENTS

Students from other departments who choose an Option A doctoral minor in political must complete 9 credits of political science coursework resulting in a cohesive theme or area of study. At least one-half of the coursework for the minor program must be taken in graduate-level offerings (700–900) in which the student has achieved grades of B or better. A written agreement as to the designated field and courses must be approved by the associate chair no later than halfway into the minor program.

### PEOPLE

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## POLITICAL SCIENCE, M.A.

The Department of Political Science offers graduate study leading to the doctor of philosophy in political science. The department accepts students only for the Ph.D. program, but a master's degree can be obtained en route to the Ph.D.

The Ph.D. is earned through a combination of coursework and dissertation. The program is designed to provide students with both a general training in political science and the opportunity to specialize in their areas of interest.

The subfields of political science found in the department are American politics (<http://polisci.wisc.edu/fields/american-politics>), comparative politics (<http://polisci.wisc.edu/fields/comparative>), political theory and philosophy (<http://polisci.wisc.edu/fields/political-theory>), international relations (<http://polisci.wisc.edu/fields/ir>), and political methodology (<http://polisci.wisc.edu/fields/political-methodology>). The department has a national and international reputation for the high quality of its faculty and for the diversity of their approaches and interests; the department has long been known for both collegiality and acceptance of varied approaches to the study of politics. Political science shares faculty with the Robert M. La Follette School of Public Affairs (<http://www.lafollette.wisc.edu>), the Law School (<http://www.law.wisc.edu>), and the Department of Gender and Women's Studies (<http://womenstudies.wisc.edu>). The presence of programs and centers such as the African Studies Program (<http://africa.wisc.edu>), the Center for European Studies (<http://ces.wisc.edu>), the Center for Jewish Studies (<http://jewishstudies.wisc.edu>), the Center for Russia, East Europe, and Central Asia (CREECA) (<http://www.creeca.wisc.edu>), Integrated Liberal Studies (<http://ils.wisc.edu>), the International Studies Major (<http://www.ismajor.wisc.edu>), Latin American, Caribbean and Iberian Studies (<http://www.lacis.wisc.edu>), and others is also beneficial to graduate

students, providing opportunities for the advancement of interdisciplinary approaches in student research.

## FUNDING

The department guarantees funding for all students making satisfactory progress for at least their first five years. Support may be in the form of fellowships, teaching assistantships, or as an assistant to a faculty research project.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.A.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 15 of the 30 credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits from graduate work from other institutions may count toward the degree.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

No credits from a UW-Madison University Special student career may count toward the degree.

#### CREDITS PER TERM ALLOWED

15 credits

#### PROGRAM-SPECIFIC COURSES REQUIRED

Complete 30 credits of coursework with at least a 3.0 average.

At least 18 of the 30 credits must be in political science. No more than three credits of POLI SCI 999 Independent Work can be counted toward the 18 credits.

Courses taken outside the department must be chosen in consultation with the student's advisor and must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the University's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

POLI SCI 800 Political Science as a Discipline and Profession is required.

#### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

#### OTHER GRADE REQUIREMENTS

No other grade requirements.

#### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Off normal progress: (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

#### ADVISOR / COMMITTEE

All students are required to meet with their advisor to discuss the first year review.

#### ASSESSMENTS AND EXAMINATIONS

No formal examination required.

#### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

#### LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

This master's program is offered for work leading to the Ph.D. Students may not apply directly for the master's, and should instead see the admissions information for the Ph.D. (p. 632)

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Develop an appreciation of the diverse subfields of political science.

- Learn to articulate questions of importance to the field that can be answered using the methods of political science.
- Learn to select and utilize methods of political inquiry appropriate to particular research questions.
- Learn to constructively critique existing work in political science.
- Develop an understanding of political science from an historical context.

## PROFESSIONAL CONDUCT

- Recognize and apply principles of ethical and professional conduct in research, teaching, and service.

## PEOPLE

**Faculty:** Professors Burden, Canon (chair), Cramer, Ewig, Gehlbach, Hendley, Herrera, Kydd, Marquez, Martin, Mayer, Owens, Pevehouse, Schatzberg, Schweber, Shafer, Straus, Tripp, Weimer, Yackee, Zumbrunnen; Associate Professors Avramenko, Copelovitch, Kapust, Kinsella, Ringe, Shelef; Assistant Professors Bhavnani, Lindsay, Lupu, Powell, Renshon, Rousseliere, Schwarze, Simmons, Weeks, Tahk

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## FUNDING

The department guarantees funding for all students making satisfactory progress for at least their first five years. Support may be in the form of fellowships, teaching assistantships, or as an assistant to a faculty research project.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (26 out of 51 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students may be allowed to count 9 credits of graduate coursework from other institutions toward fulfillment of the minor requirement. While satisfying the minor requirement, these credits will not count toward meeting the minimum credit requirement. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No credits from a UW–Madison University Special student career may count toward the degree.

### CREDITS PER TERM ALLOWED

15 credits



## PROGRAM-SPECIFIC COURSES REQUIRED

POLI SCI 800 Political Science as a Discipline and Profession;  
POLI SCI 817 Empirical Methods of Political Inquiry; 3 additional credits of graduate-level statistical methodology

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Students are expected to consult with their advisors concerning minor/breadth requirements. At the time the student requests the preliminary exam warrant, a summary should be prepared of the effort in interdisciplinary coursework and training. There are two options for completing the minor requirements.

Option A (external): Requires a minimum of 9 credits in a minor program (single disciplinary or multi-disciplinary). Fulfillment of this option requires the approval of the minor program.

Option B (distributed): Requires a minimum of 9 credits in one or more programs forming a coherent topic, and can include coursework in the program. Fulfillment of this option requires the approval of the major program.

The Graduate School's minimum course requirements for the minor include: An average GPA of 3.00 on all minor coursework; coursework must be graduate level (the equivalent of UW–Madison courses 300 level or above; no audits or pass/fail); maximum 3 credits of independent study (e.g., 699, 799, 899, 999);

All Option B minors require the approval of the student's advisor and the associate chair.

With program approval, students may be allowed to count 9 credits of graduate coursework from other institutions toward fulfillment of the minor requirement.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

No other grade requirements.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Off normal progress: (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status.
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

## ADVISOR / COMMITTEE

All students are required to meet with their advisor to discuss the first year review.

## ASSESSMENTS AND EXAMINATIONS

Doctoral students must complete written exams in two subfields before the end of the sixth semester. A dissertation proposal must be defended prior to the start of the seventh semester in the program.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Applicants to the Ph.D. program must apply online by December 15 for admission the following fall. The online application requires you to submit the Graduate School application, three references and completion of the Political Science supplemental application. A statement of reasons for graduate study, a scanned set of official transcripts, and a research paper with abstract must be uploaded as part of the supplemental application. GRE scores are required. Applicants from outside the United States may also need to submit TOEFL scores. It is the candidate's responsibility to ensure that all materials are delivered on time.

International applicants whose first language is not English will be admitted only if they have Test of English as a Foreign Language (TOEFL) of 100 (Internet-based).

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- The doctoral-level learning goals of the Department of Political Science are inclusive of the master's-level learning goals.
- Master the state of existing research in two or more subfields of political science.
- Acquire expert knowledge of methods of political inquiry.
- Design, conduct, and complete original research of substantive value to the field of political science that makes and original contribution to knowledge.
- Master the communication of complex concepts to a range of audiences.

## PROFESSIONAL CONDUCT

- Demonstrate and foster ethical and professional conduct in research, teaching, and service.

## PEOPLE

**Faculty:** Professors Burden, Canon (chair), Cramer, Ewig, Gehlbach, Hendley, Herrera, Kydd, Marquez, Martin, Mayer, Owens, Pevehouse,

Schatzberg, Schweber, Shafer, Straus, Tripp, Weimer, Yackee,  
Zumbrunnen; Associate Professors Avramenko, Copelovitch, Kapust,  
Kinsella, Ringe, Shelef; Assistant Professors Bhavnani, Lindsay, Lupu,  
Powell, Renshon, Rousseliere, Schwarze, Simmons, Weeks, Tahk

# POPULATION HEALTH SCIENCES

**Administrative Unit:** Population Health Sciences

**College/School:** School of Medicine and Public Health

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S. in Epidemiology; M.S. in Population Health Sciences; Ph.D. in Epidemiology; Ph.D. in Population Health Sciences

**Minors and Certificates:** Doctoral Minor in Epidemiology Doctoral Minor in Population Health Sciences; Graduate Professional Certificate in Global Health

**Named Options:** Epidemiology (M.S./Ph.D.)

**Specializations:** Epidemiology, Health Services Research, Social and Behavioral Health Sciences, and Clinical Research.

The Department of Population Health Sciences, part of the School of Medicine and Public Health, strives to provide leadership in the emerging, integrative field of population health. Its mission is to create, integrate, disseminate, and apply knowledge promoting the most efficient, equitable, and effective possible use of resources to maintain and improve the health of populations.

The department offers two graduate degree programs: an M.S. and a Ph.D. in population health and an M.S. and Ph.D. in epidemiology. Concentrations are available in epidemiology, health services research, social and behavioral health sciences, and clinical research.

The research-oriented degree programs are designed to provide rigorous, interdisciplinary training to develop students' abilities to synthesize knowledge and skills needed to address today's health-related problems. Methodological and analytical training is grounded in biostatistics, epidemiology, and health services research, but also emphasizes methods employed in the social sciences and econometrics that contribute to the study of health in populations. While the program is based on a sequence of core courses, students, in consultation with their major professor, have the flexibility to design advanced study and research that best prepares them for their chosen area of interest.

Individuals choose this program because of its innovative approach, strong research focus, and personal attention to students. It is an ideal option for those considering a broad array of fields including epidemiology, public health, health policy, health economics, health services research, environmental health, industrial engineering, demography, and more. UW–Madison ranks as one of the most prolific research universities in the world, consistently placing in the top five among American public universities for research expenditures. The program's interdisciplinary focus allows students the flexibility to work with a wide array of research/faculty on campus. For instance, program faculty include members from a number of other departments such as business, family medicine, industrial engineering, law, medical history and bioethics, medicine, nursing, ophthalmology, public affairs, sociology, and veterinary medicine. The multidisciplinary faculty coupled with the diverse backgrounds of the students provides a rich and stimulating training environment.

Faculty, staff, and students in the Department of Population Health Sciences engage in a wide variety of epidemiological and health services world-class research projects to understand determinants of health and health problems in populations, to analyze public and clinical health policies, and to improve the effectiveness and efficiency of

healthcare. Research topics may include (but are not limited to) chronic, infectious, and environmental disease epidemiology; public health; studies of medical outcomes; health economics; the determinants and measurement of population health status; and health administration and policy. These multidisciplinary research programs may include (but are not limited to) the study the effects and interactions of genetic traits; biologic and metabolic processes; pathogens; pollutants; lifestyles; behaviors; economic social and physical environments; and public health and health care systems on the health of populations. Methods employed involve developing and maintaining long term cohort studies, disease registries, population surveys, and retrospective analyses of large observational databases. Researchers in the department also work to advance methodology in health economics, population health evaluation, and statistical analyses.

For more information, see the graduate program Academic Guide (<http://www.pophealth.wisc.edu/Current-Students/Policy-Procedures/Handbooks>).

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Epidemiology, M.S. (p. 635)
- Epidemiology, Ph.D. (p. 638)
- Global Health, Graduate/Professional Certificate (p. 640)
- Population Health, Doctoral Minor (p. 641)
- Population Health, M.S. (p. 641)
- Population Health, Ph.D. (p. 645)

## PEOPLE

**Faculty:** Professors Nieto (chair), Cruickshanks, Durkin, Kanarek, Mullahy, Oliver, Palta, Patz, Remington, M. Smith, Wolfe, Young; Associate Professors Astor, Bautista, Engelman, Gangnon, Jacobs, Martinez-Donate, Olson, Peppard, Sethi, Si, Timberlake, Trentham-Dietz, Vanness; Assistant Professors M. Burns, DuGoff, Malecki, Pillai; CHS Professor Brokopp

## EPIDEMIOLOGY, M.S.

Epidemiology is the scientific discipline primarily concerned with identifying the distribution and causes of disease in populations. It encompasses a rich methodology including observational and experimental study designs, statistical methods, an understanding of pathogens, environmental and behavioral risk factors, and human biology. Epidemiological methods have evolved to meet threats of global infectious diseases and the complex health challenges presented by an aging population, as well as to capitalize on the expanding understanding of human genetics. As the fundamental discipline of public health, epidemiology provides essential knowledge to design, implement, and assess approaches to effectively prevent disease and improve quality of life in the population.

The research-oriented degree programs are designed to provide rigorous training to develop students' abilities to synthesize knowledge and skills needed to address today's health-related problems. Faculty, staff, and students in the Department of Population Health Sciences engage in a wide variety of epidemiological and health services world-class research

projects. The interdisciplinary focus allows students the flexibility to work with a wide array of research/faculty on campus.

The department offers two graduate degree programs: an M.S. and a Ph.D. in epidemiology and an M.S. and Ph.D. in population health. While the program is based on a sequence of core courses, students, in consultation with their major professor, have some flexibility to design advanced study and research that best prepares them for their chosen area of interest.

## FUNDING

Students admitted to our degree programs are automatically considered for any available scholarships, traineeships, or graduate assistant positions in the department. The most common forms of funding support for our students are assistantships, traineeships, and fellowships.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

33 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

21 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

100% of all coursework taken as a graduate student in any of the four degrees the program offers must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count a maximum of 12 credits of graduate coursework taken from other institutions as a graduate student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 12 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
POP HLTH/B M I 451	Introduction to SAS Programming for Population Health	2
POP HLTH/B M I 551	Introduction to Biostatistics for Population Health	3
POP HLTH/B M I 552	Regression Methods for Population Health	3
POP HLTH/SOC 797	Introduction to Epidemiology	3
POP HLTH 798	Epidemiologic Methods	3
POP HLTH 805	Advanced Epidemiology: Causal Inference in Epidemiological Studies	3
or POP HLTH 806	Advanced Epidemiology: Practice of Epidemiology	
POP HLTH 820	Graduate Research Seminar	1
Select minimum of 1 credit of medical ethics		

### OVERALL GRADUATE GPA REQUIREMENT

Students must maintain a cumulative GPA of at least 3.25 in all graduate work (including transfer credits) unless conditions for probationary status require higher grades. Students must also maintain a cumulative GPA of 3.25 or better in all coursework completed while enrolled in the population health graduate program. No grade of BC or lower in epidemiology required courses will be accepted for the degree.

### OTHER GRADE REQUIREMENTS

Maintain no more than 6 credits of Incomplete (I) grades during any semester.

### PROBATION POLICY

A student not meeting guidelines for satisfactory progress will be placed on probation for one semester and will be reviewed by the Steering Committee following the probationary semester. Students may be dropped or allowed to continue by the committee based on review of progress during the probationary semester.

### ADVISOR / COMMITTEE

All students will have a hold placed on their registration each semester. Students must meet with their advisor once each semester for academic advising to have the hold removed.

### ASSESSMENTS AND EXAMINATIONS

No formal examination required.

### TIME CONSTRAINTS

Thesis required. Approval of a written proposal for thesis research is required before beginning thesis. M.S. candidates must submit master's thesis to advisor within two years of completing all coursework.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Applications are welcome from students with diverse academic backgrounds. Students with strong quantitative skills and academic preparation in the biological sciences are strongly encouraged to apply.

Minimum requirements are:

- Applicants must have an undergraduate degree with a grade point average of 3.0 (on a 4.0 scale), although successful applicants generally have GPAs above 3.0.
- GRE scores are required for admission. The scores must be no more than five years old at the time of application. For applicants who have completed a doctoral degree, GRE scores are preferred but the program will accept scores for the entrance exam required for the doctoral degree (e.g., MCAT, LSAT). Students should contact the graduate program coordinator to find out if their scores are competitive.
- Applicants whose native language or language of study is not English must submit official TOEFL scores. Scores must be no more than five years old at the start of the semester for which an applicant is applying. Further details are available on the Graduate School website (<http://grad.wisc.edu>). Note that the minimum test scores for the program are higher than those required by the Graduate School. For the Test of English as a Foreign Language, TOEFL (<http://www.toefl.org>), minimum scores of 580 (written), 237 (computer-based), or 92 (Internet-based) or above are required.
- Transcripts must show evidence of quantitative preparation, including at least one semester of calculus as well as a two-semester courses in college-level biology. A personal statement and three letters of recommendation are required. Applicants must meet both the above departmental admission requirements and the Graduate School admission requirements.
- Upon entry to the graduate program, students are matched with a faculty advisor. Faculty advisors helps students hone their interests, assists with identifying research projects, provide support for career development, and link students to the greater campus community. Students have the benefit of regular dialogues with faculty members. Seminars and integrated discussion groups allow for increased interaction with core faculty and community lecturers. Finally, the work of students is valued as evidenced by their entries in the annual department poster session, participation in public health symposia, authorship of publications, and involvement in community/research projects.
- Produce the descriptive epidemiology of a given condition, including case definition, calculation of the primary measures of disease morbidity and mortality, and appropriate comparisons by person, place and time.
- List the strengths and limitations of descriptive studies.
- Identify data from existing national and international sources.
- Identify major chronic and infectious diseases, their general pathophysiology, descriptive epidemiology and risk factors.
- Identify leading causes of death.
- Understand the general history of the development of epidemiology, including the major epidemiological studies of selected diseases.
- Know the principles of screening and of surveillance systems, including understand the concepts of validity and reliability of screening tests and be able to calculate associated measures and know the types of surveillance systems and approaches used in disease surveillance.
- Understand the global, cultural, and social context of health problems and how these influence the conduct, interpretation, and dissemination of research and intervention studies.
- Search, review and critically evaluate the literature.
- Synthesize available information.
- Identify meaningful gaps in knowledge.
- Formulate an original and key hypothesis or statement of the research problem.
- Design a study using any of the main study designs (including clinical trials and community trials).
- Understand the advantages and limitations of each design for addressing specific problems, as well as practical aspects of their uses, including trade-offs.
- Calculate the requisite sample size.
- Identify and minimize sources of bias; describe both the direction and magnitude of the bias and the effect of potential biases on the measures of association.
- Use basic population sampling methods.
- Use methods of measurement design data collection forms assessing both exposures and outcomes; determine the validity of the instrument; identify the presence and magnitude of measurement error; adjust for measurement error when appropriate data are available.
- Monitor the conduct and progress of data collection; develop, implement and assess quality control measures.
- Create data files appropriate for analysis; carry out the steps needed to create new variables, clean the data sets, etc.
- Use statistical computer packages to calculate and display descriptive statistics, analyze categorical data, and perform multivariable regression, survival analysis, and longitudinal analysis.
- Examine data for the presence of confounding and interaction (effect modification), identify their presence, and manage them appropriately.
- Interpret the research results, make appropriate inferences based on results, and recognize the implications of the research results.
- Communicate research results orally and in writing to both scientists and non-scientists.
- Understand the concepts of human subjects protections and confidentiality, and awareness of particular issues relevant to the study of specific populations.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Complete course work or equivalent in human physiology and pathophysiology, with special competence in the disease addressed in the student's dissertation.

- Apply this understanding as evidenced in the design and conduct of their research.
- Demonstrate mastery of a substantive area, including knowledge and application of that knowledge in conducting original research related to a specific topic.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct as they apply to Epidemiology.

## PEOPLE

**Faculty:** Professors Nieto (chair), Cruickshanks, Durkin, Kanarek, Palta, Patz, Remington, Young; Associate Professors Astor, Bautista, Engleman, Gangnon, Martinez-Donate, Peppard, Sethi, Trentham-Dietz; Assistant Professor Malecki; CHS Professor Brokopp

## EPIDEMIOLOGY, PH.D.

Epidemiology is the scientific discipline primarily concerned with identifying the distribution and causes of disease in populations. It encompasses a rich methodology including observational and experimental study designs, statistical methods, an understanding of pathogens, environmental and behavioral risk factors, and human biology. Epidemiological methods have evolved to meet threats of global infectious diseases and the complex health challenges presented by an aging population, as well as to capitalize on the expanding understanding of human genetics. As the fundamental discipline of public health, epidemiology provides essential knowledge to design, implement, and assess approaches to effectively prevent disease and improve quality of life in the population.

The research-oriented degree programs are designed to provide rigorous training to develop students' abilities to synthesize knowledge and skills needed to address today's health-related problems. Faculty, staff, and students in the Department of Population Health Sciences engage in a wide variety of epidemiological and health services world-class research projects. The interdisciplinary focus allows students the flexibility to work with a wide array of research/faculty on campus.

The department offers two graduate degree programs: an M.S. and a Ph.D. in epidemiology and an M.S. and Ph.D. in population health. While the program is based on a sequence of core courses, students, in consultation with their major professor, have some flexibility to design advanced study and research that best prepares them for their chosen area of interest.

## FUNDING

Students admitted to our degree programs are automatically considered for any available scholarships, traineeships, or graduate assistant positions in the department. The most common forms of funding support for our students are assistantships, traineeships, and fellowships.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

65 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

53 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

100% of all coursework taken as a graduate student in any of the four degrees the program offers must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count a maximum of 12 credits of graduate coursework taken from other institutions as a graduate student. Coursework earned five or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 12 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
POP HLTH/B M I 451	Introduction to SAS Programming for Population Health	2
POP HLTH/B M I 551	Introduction to Biostatistics for Population Health	3
POP HLTH/B M I 552	Regression Methods for Population Health	3

POP HLTH/B M I 651	Advanced Regression Methods for Population Health	3
POP HLTH/B M I 652	Topics in Biostatistics for Epidemiology	1-3
POP HLTH/SOC 797	Introduction to Epidemiology	3
POP HLTH 798	Epidemiologic Methods	3
POP HLTH 805	Advanced Epidemiology: Causal Inference in Epidemiological Studies	3
POP HLTH 806	Advanced Epidemiology: Practice of Epidemiology	3
POP HLTH 820	Graduate Research Seminar	1

Select a minimum of 1 credit of medical ethics

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a 10-credit minor.

## OVERALL GRADUATE GPA REQUIREMENT

Students must maintain a cumulative GPA of at least 3.25 in all graduate work (including transfer credits) unless conditions for probationary status require higher grades. Students must also maintain a cumulative GPA of 3.25 or better in all coursework completed while enrolled in the population health graduate program. No grade of BC or lower in epidemiology required courses will be accepted for the degree.

## OTHER GRADE REQUIREMENTS

Maintain no more than 6 credits of Incomplete (I) grades during any semester.

## PROBATION POLICY

A student not meeting guidelines for satisfactory progress will be placed on probation for one semester and will be reviewed by the Steering Committee following the probationary semester. Students may be dropped or allowed to continue by the committee based on review of progress during the probationary semester.

## ADVISOR / COMMITTEE

All students will have a hold placed on their registration each semester. Students must meet with their advisor once each semester for academic advising to have the hold removed.

## ASSESSMENTS AND EXAMINATIONS

Full-time students have up until the end of their third year to pass the Qualifying Exam and their first sitting must occur no later than the end of their second year. Part-time students are expected to pass the exam before the end of their fourth year (regardless of whether the student is continuously enrolled) and their first sitting must occur no later than the end of their third year.

## TIME CONSTRAINTS

Dissertation required. Doctoral students have a maximum of five years from the date of passing the preliminary examination to take the final oral examination and deposit the dissertation.

Doctoral degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Applications are welcome from students with diverse academic backgrounds. Students with strong quantitative skills and academic preparation in the biological sciences are strongly encouraged to apply.

Minimum requirements are:

- Applicants must have an undergraduate degree with a grade point average of 3.0 (on a 4.0 scale), although successful applicants generally have GPAs above 3.0.
- GRE scores are required for admission. The scores must be no more than five years old at the time of application. For applicants who have completed a doctoral degree, GRE scores are preferred but the program will accept scores for the entrance exam required for the doctoral degree (e.g., MCAT, LSAT). Students should contact the graduate program coordinator to find out if their scores are competitive.
- Applicants whose native language or language of study is not English must submit official TOEFL scores. Scores must be no more than five years old at the start of the semester for which an applicant is applying. Further details are available on the Graduate School website (<http://grad.wisc.edu>). Note that the minimum test scores for the program are higher than those required by the Graduate School. For the Test of English as a Foreign Language, TOEFL (<http://www.toefl.org>), minimum scores of 580 (written), 237 (computer-based), or 92 (Internet-based) or above are required.
- Transcripts must show evidence of quantitative preparation, including at least one semester of calculus as well as a two-semester courses in college-level biology. A personal statement and three letters of recommendation are required. Applicants must meet both the above departmental admission requirements and the Graduate School admission requirements.
- Upon entry to the graduate program, students are matched with a faculty advisor. Faculty advisors help students hone their interests, assist with identifying research projects, provide support for career development, and link students to the greater campus community. Students have the benefit of regular dialogues with faculty members. Seminars and integrated discussion groups allow for increased interaction with core faculty and community lecturers. Finally, the work of students is valued as evidenced by their entries in the annual department poster session, participation in public health symposia, authorship of publications, and involvement in community/research projects.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Complete course work or equivalent in human physiology and pathophysiology, with special competence in the disease addressed in the student's dissertation.
- Produce the descriptive epidemiology of a given condition, including case definition, calculation of the primary measures of disease morbidity and mortality, and appropriate comparisons by person, place and time.

- List the strengths and limitations of descriptive studies.
- Identify data from existing national and international sources.
- Identify major chronic and infectious diseases, their general pathophysiology, descriptive epidemiology and risk factors.
- Identify leading causes of death.
- Understand the general history of the development of epidemiology, including the major epidemiological studies of selected diseases.
- Know the principles of screening and of surveillance systems, including understand the concepts of validity and reliability of screening tests and be able to calculate associated measures and know the types of surveillance systems and approaches used in disease surveillance.
- Understand the global, cultural, and social context of health problems and how these influence the conduct, interpretation, and dissemination of research and intervention studies.
- Search, review and critically evaluate the literature.
- Synthesize available information.
- Identify meaningful gaps in knowledge.
- Formulate an original and key hypothesis or statement of the research problem.
- Design a study using any of the main study designs (including clinical trials and community trials).
- Understand the advantages and limitations of each design for addressing specific problems, as well as practical aspects of their uses, including trade-offs.
- Calculate the requisite sample size.
- Identify and minimize sources of bias; describe both the direction and magnitude of the bias and the effect of potential biases on the measures of association.
- Use basic population sampling methods.
- Use methods of measurement design data collection forms assessing both exposures and outcomes; determine the validity of the instrument; identify the presence and magnitude of measurement error; adjust for measurement error when appropriate data are available.
- Monitor the conduct and progress of data collection; develop, implement and assess quality control measures.
- Create data files appropriate for analysis; carry out the steps needed to create new variables, clean the data sets, etc.
- Use statistical computer packages to calculate and display descriptive statistics, analyze categorical data, and perform multivariable regression, survival analysis, and longitudinal analysis.
- Examine data for the presence of confounding and interaction (effect modification), identify their presence, and manage them appropriately.
- Interpret the research results, make appropriate inferences based on results, and recognize the implications of the research results.
- Communicate research results orally and in writing to both scientists and non-scientists.
- Present research data in both tabular and figure forms.
- Understand the concepts of human subjects protections and confidentiality, and awareness of particular issues relevant to the study of specific populations.
- Apply this understanding as evidenced in the design and conduct of their research.
- Demonstrate mastery of a substantive area, including knowledge and application of that knowledge in conducting original research related to a specific topic.
- Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.
- Relative to # 6 above, have a more in-depth knowledge of study designs used in epidemiologic research (including cross-sectional studies, case-control studies, cohort studies, and randomized trials).
- Be able to identify meaningful gaps in knowledge.
- Formulate an original, key hypothesis or statement of a research problem.
- Design a study using any relevant study design (including clinical trial, community trial) OR one based on creative use of existing data. Understand the advantages and limitations of each design for addressing specific problems, as well as practical aspects of their uses, including trade-offs.
- In addition to item 9 above, be able to identify and minimize sources of bias in the chosen study design; describe both the direction and magnitude of the bias and the effect of potential biases on the measures of association.
- Understand the basics of population sampling methods.
- Assess validity of data collection tools for both exposures and outcomes; and the presence, magnitude and impact of measurement error.
- Interpret research results, and recognize their implications for future research needs and for population health and health policy.
- Communicate research results orally and in writing to both scientists and non-scientists.
- Demonstrate mastery of a substantive area, including knowledge and application of that knowledge in conducting original research related to a specific topic.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct as they apply to Epidemiology.

## PEOPLE

**Faculty:** Professors Nieto (chair), Cruickshanks, Durkin, Kanarek, Palta, Patz, Remington, Young; Associate Professors Astor, Bautista, Engleman, Gangnon, Martinez-Donate, Peppard, Sethi, Trentham-Dietz; Assistant Professor Malecki; CHS Professor Brokopp

## GLOBAL HEALTH, GRADUATE/ PROFESSIONAL CERTIFICATE

The global health certificate program is designed to assist traditional and nontraditional students with interests in global health.

- The graduate/professional certificate is available to graduate students and professional students in the health sciences.
- The capstone certificate is offered to University Special students who have earned a bachelor's degree and who have interest and/or experience in a global health-related field. Degree-seeking students may not enroll in the capstone certificate.



The program is based in the Department of Population Health Sciences in the School of Medicine and Public Health, and is administered by the campuswide Global Health Institute. The certificate curriculum focuses on global health topics and health issues that transcend national boundaries, emphasizing health and disease in developing countries.

Through a 9-credit program of preparatory coursework and culminating in a global-health field experience, students will be prepared to address health disparities in a context of cultural diversity. Certificate recipients may serve populations internationally or work among the increasingly diverse population of Wisconsin and the United States. Through core courses and electives, students may focus their studies on health promotion, detection and treatment of disease, prevention and management of outbreaks, health policy, environmental health, or other interdisciplinary topics.

### Educational Benchmarks for Certificate Program

- Expansion and discussion of knowledge of major themes and trends in global health
- Enhancement of communication skills for trans-cultural, interdisciplinary health practice
- Demonstration of effective collaboration with colleagues abroad
- Analysis of health system infrastructures at local and national levels
- Discussion of ethical standards for conduct of research in international settings
- Integration of one's discipline-specific role with other disciplines to promote effective interdisciplinary team practice
- Use of evidence-based principles in practice settings

Certificate program staff are identified on the program website (<http://ghi.wisc.edu/education/professional-graduate-and-capstone>).

## PEOPLE

**Faculty:** DiPrete Brown, Conway, Durkin, Kraus, Patz, Sladky, Solheim

## POPULATION HEALTH, DOCTORAL MINOR

Many, if not all, research endeavors have implications for health. The doctoral minor in population health provides the methodological foundations for understanding how health is evaluated, how to assess influences on health and how to critically evaluate health related research. In addition, students completing the minor enhance their general understanding of research design and statistical interpretation. The coursework encompasses the methodological cornerstones of population health and clinical research: epidemiology, health services research, and biostatistics. The electives allow students to emphasize epidemiology or health services research. The population health minor is open to students in any major field of graduate studies at the University of Wisconsin. Given the necessarily quantitative emphasis of the coursework, a prior one-semester course in biostatistics (such as POP HLTH/B M I 551 Introduction to Biostatistics for Population Health, B M I/STAT 541 Introduction to Biostatistics, STAT/F&W ECOL/HORT 571 Statistical Methods for Bioscience I or B M I/STAT 511 Introduction to Biostatistical Methods for Public Health) is required or can be taken simultaneously (prior to B M I/POP HLTH 552 Regression Methods for Population Health) with course work for the minor.

## REQUIREMENTS

Code	Title	Credits
<b>Required courses:</b>		
POP HLTH/SOC 797	Introduction to Epidemiology	3
POP HLTH 780	Public Health: Principles and Practice	3
POP HLTH 796	Introduction to Health Services Research	3
<i>Students are strongly encouraged to take one of the following as an elective. However, other POP HLTH courses can be considered:</i>		
POP HLTH/B M I 552	Regression Methods for Population Health	3
POP HLTH/B M I 651	Advanced Regression Methods for Population Health	3

A likely course sequence for the doctoral minor in population health would be as follows:

Fall	Credits Spring	Credits
POP HLTH 795 or 780	1-3 POP HLTH 796 or 798	3
POP HLTH/SOC 797	3 POP HLTH Elective	3
	4-6	6

Total Credits 10-12

Students who request exemptions and/or substitutions for required minor courses must appeal to the director of the graduate program through the graduate program coordinator. In this case, the appeal must include a Proposed Minor Program Plan, which must be approved and signed by the graduate program director.

## ADMISSIONS

In order to have approval to pursue the population health minor, please send an email to the Population Health Sciences Graduate Program Coordinator, Quinn Fullenkamp ([quinn.fullenkamp@wisc.edu](mailto:quinn.fullenkamp@wisc.edu)), explaining the sequence of courses that you plan to take toward the doctoral minor requirement. Be sure to include course completion dates. Your plan will be approved via email. When you are ready to have your warrant signed, email Quinn Fullenkamp again to make arrangements to obtain a signature.

## POPULATION HEALTH, M.S.

The Department of Population Health Sciences, part of the School of Medicine and Public Health, strives to provide leadership in the emerging, integrative field of population health. Its mission is to create, integrate, disseminate, and apply knowledge promoting the most efficient, equitable, and effective possible use of resources to maintain and improve the health of populations.

The department offers two graduate degree programs: an M.S. and a Ph.D. in population health and an M.S. and Ph.D. in epidemiology. Concentrations are available in epidemiology, health services research, social and behavioral health sciences, and clinical research.

The research-oriented degree programs are designed to provide rigorous, interdisciplinary training to develop students' abilities to synthesize knowledge and skills needed to address today's health-related problems. Methodological and analytical training is grounded in biostatistics, epidemiology, and health services research, but also emphasizes methods employed in the social sciences and econometrics that contribute to the study of health in populations. While the program is based on a sequence of core courses, students, in consultation with their major professor, have the flexibility to design advanced study and research that best prepares them for their chosen area of interest.

Individuals choose this program because of its innovative approach, strong research focus, and personal attention to students. It is an ideal option for those considering a broad array of fields including epidemiology, public health, health policy, health economics, health services research, environmental health, industrial engineering, demography, and more. UW–Madison ranks as one of the most prolific research universities in the world, consistently placing in the top five among American public universities for research expenditures. The program's interdisciplinary focus allows students the flexibility to work with a wide array of research/faculty on campus. For instance, program faculty include members from a number of other departments such as business, family medicine, industrial engineering, law, medical history and bioethics, medicine, nursing, ophthalmology, public affairs, sociology, and veterinary medicine. The multidisciplinary faculty coupled with the diverse backgrounds of the students provides a rich and stimulating training environment.

Faculty, staff, and students in the Department of Population Health Sciences engage in a wide variety of epidemiological and health services world-class research projects to understand determinants of health and health problems in populations, to analyze public and clinical health policies, and to improve the effectiveness and efficiency of healthcare. Research topics may include (but are not limited to) chronic, infectious, and environmental disease epidemiology; public health; studies of medical outcomes; health economics; the determinants and measurement of population health status; and health administration and policy. These multidisciplinary research programs may include (but are not limited to) the study the effects and interactions of genetic traits; biologic and metabolic processes; pathogens; pollutants; lifestyles; behaviors; economic social and physical environments; and public health and health care systems on the health of populations. Methods employed involve developing and maintaining long term cohort studies, disease registries, population surveys, and retrospective analyses of large observational databases. Researchers in the department also work to advance methodology in health economics, population health evaluation, and statistical analyses.

For more information, see the graduate program Academic Guide (<http://www.pophealth.wisc.edu/Current-Students/Policy-Procedures/Handbooks>).

## FUNDING

Students admitted to our degree programs are automatically considered for any available scholarships, traineeships, or graduate assistant positions in the department. The most common forms of funding support for our students are assistantships, traineeships, and fellowships.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available named option in Epidemiology

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

33 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

21 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

100% of all coursework taken as a graduate student must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count a maximum of 12 credits of graduate coursework taken from other institutions as a graduate student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 12 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
POP HLTH/B M I 451	Introduction to SAS Programming for Population Health	2
POP HLTH/B M I 551	Introduction to Biostatistics for Population Health	3
POP HLTH/B M I 552	Regression Methods for Population Health	3

POP HLTH 795	Principles of Population Health Sciences	1-3
POP HLTH/SOC 797	Introduction to Epidemiology	3
POP HLTH 820	Graduate Research Seminar	1
Select two additional methods courses <sup>1</sup>		
Select a minimum of 1 credit of medical ethics		
POP HLTH 794	Biological Basis of Population Health <sup>2</sup>	2

<sup>1</sup> One of which must be POP HLTH 796 Introduction to Health Services Research or POP HLTH 798 Epidemiologic Methods.

<sup>2</sup> Some students must also complete this course.

## OVERALL GRADUATE GPA REQUIREMENT

Students must maintain a cumulative GPA of at least 3.25 in all graduate work (including transfer credits) unless conditions for probationary status require higher grades. Students must also maintain a cumulative GPA of 3.25 or better in all coursework completed while enrolled in the population health graduate program. No grade of BC or lower in epidemiology required courses will be accepted for the degree.

## OTHER GRADE REQUIREMENTS

Maintain no more than 6 credits of Incomplete (I) grades during any semester.

## PROBATION POLICY

A student not meeting guidelines for satisfactory progress will be placed on probation for one semester and will be reviewed by the steering committee following the probationary semester. Students may be dropped or allowed to continue by the committee based on review of progress during the probationary semester.

## ADVISOR / COMMITTEE

All students will have a hold placed on their registration each semester. Students must meet with their advisor once each semester for academic advising to have the hold removed.

## ASSESSMENTS AND EXAMINATIONS

No formal examination required.

## TIME CONSTRAINTS

Thesis required. Approval of a written proposal for thesis research is required before beginning thesis. M.S. candidates must submit Master's thesis to advisor within two years of completing all coursework.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Applications are welcome from students with diverse academic backgrounds. Students with strong academic preparation in the biological/medical sciences, quantitative analysis, and/or population health related social sciences are strongly encouraged to apply. Historically, many applicants who have succeeded in our program

have come to the program with backgrounds in fields as diverse as microbiology, genetics, nutritional sciences, medicine, nursing, pharmacy, veterinary medicine, environmental sciences, political sciences, business, sociology, education, engineering, psychology, and economics.

Minimum requirements are:

1. Applicants must have an undergraduate degree with a grade point average of 3.0 (on a 4.0 scale), although successful applicants generally have GPAs above 3.0.
2. GRE are required for admission. The scores must be no more than five years old at the time of application. For applicants who have completed a doctoral degree, GRE scores are preferred but the program will accept scores for the entrance exam required for the doctoral degree (e.g., MCAT, LSAT). Students should contact the graduate program coordinator to find out if their scores are competitive.
3. Applicants whose native language or language of study is not English must submit official TOEFL scores. Scores must be no more than five years old at the start of the semester for which an applicant is applying. Further details are available on the Graduate School website (<http://grad.wisc.edu/admissions/requirements>). Note that the minimum test scores for the program are higher than those required by the Graduate School. For the Test of English as a Foreign Language, TOEFL (<http://www.toefl.org>), a minimum score of 580 (written), 237 (computer-based), or 92 (Internet-based) or above is absolutely required.
4. At least one semester of advanced quantitative preparation (calculus is strongly preferred) with a grade of B or better.
5. A personal statement and three letter of recommendation are required.
6. Applicants must meet both the above departmental admission requirements and the Graduate School admission requirements.

Upon entry to the graduate programs, students are matched with a faculty advisor. Faculty advisors helps students hone their interests, assists with identifying research projects, provide support for career development, and link students to the greater campus community. Students have the benefit of regular dialogues with faculty members. Seminars and integrated discussion groups allow for increased interaction with core faculty and community lecturers. Finally, the work of students is valued as evidenced by their entries in the annual department poster session, participation in public health symposia, authorship of publications, and involvement in community/research projects.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### HEALTH SERVICES RESEARCH

- Understand and apply principles of population health science in characterizing: (a) the multiple determinants of health; and (b) the allocation of resources across those determinants and its influence on health and health disparities.
- Understand and apply principles of microeconomic theory relating to human and institutional decisions in the allocation of scarce resources for the production of health at individual, system and population levels.

- Understand and apply the principles of health outcomes measurement and its role in the design of health services, policy, intervention and evaluation.
- Describe the historical and current organization, delivery and financing of health care services in the United States.
- Describe the historical and current role of government in the regulation, provision and financing of health care services in the United States.
- Describe the role of social institutions, culture and behavior on the production of health at individual, system and population levels.
- Apply economic principles to describe, predict and evaluate the impact of government policy on the production of health and health care.
- Understand advantages and disadvantages of experimental, quasi-experimental and observational study designs for the evaluation of interventions, policies and processes that affect utilization and cost of health services and/or the production of health.
- Have a working knowledge of the availability, use, advantages and limitations of various sources of publicly available and/or electronically captured data on health care utilization and outcomes, including but not limited to: major surveys of healthcare utilization, electronic medical records and administrative claims datasets.

## BIostatISTICS

- Be thoroughly familiar with how to organize and manipulate data and perform basic statistical analyses in at least one major statistical software package (SAS, Stata, or R, perhaps SPSS is sufficient for some).
- Be familiar with the basic concepts of probability, random variation and commonly used statistical probability distributions and their applications in health research.
- Understand the foundations of statistical inference such as parameters, estimators, hypothesis tests and confidence intervals.
- Be able to describe samples appropriately, using measures of central tendency and dispersion.
- Know and assess assumptions and types of data needed for different common approaches to compare samples and be able to conduct and interpret these comparisons.
- Fit and interpret the results from linear, logistic and Cox regression models (including logistic models with multiple outcome categories and those for case-control data).
- Understand and be able to assess the assumptions of linear, logistic and Cox models.
- Explain the results of the above statistical analyses in subject matter terms to researchers and health professionals.
- Understand how measures of association, risk and rate learned in epi courses relate to estimators arising from the above models.
- Apply the concepts of intermediate variables, confounding variables, and interacting variables in the process of variable selection and model building.

## EPIDEMIOLOGY

- Have basic knowledge of human physiology and pathophysiology, with special competence in the aspects of health addressed in the student's thesis or dissertation.
- Know the methods and measures of descriptive epidemiology, including case definition, calculation of the primary measures of

disease morbidity and mortality, and appropriate comparisons by person, place and time.

- Be familiar with major disease categories and leading causes of death, their general pathophysiology, descriptive epidemiology & risk factors, and with the multiple determinants of health, including social, behavioral and other influences on the health of individuals and populations.
- Understand the concepts and practical implications of random and systematic errors (i.e. sampling error and bias: information, selection and confounding bias) as they apply to causal inferences in observational studies.
- Understand the concepts and practical implications of interaction, effect modification, and mediation of causal effects in observational studies.
- Identify the basic study designs used in epidemiologic research and know the advantages and disadvantages of each (including cross-sectional, case-control, cohort, and randomized trials).
- Understand principles of causal inference in epidemiologic studies and be able to critique, use or discuss them in the context of evaluating evidence. This includes application of the counterfactual model in estimation of causal effects and the ability to explain assumptions needed for valid estimation of causal effects in epidemiologic studies.
- Be familiar with publicly available national and international data sources and resources, and know how to start accessing them.
- Read and critique studies with respect to most common biases (confounding, selection bias, and information bias), as well as role of random error, and interpretation of results.
- Synthesize available information by searching, review and critically evaluating the literature
- Have in depth knowledge of at least one health condition, disease or risk factor area.
- Have in depth understanding of at least one methodological issue that arises in epidemiologic research.
- Know the uses and principles of screening, including the concepts of validity and reliability of screening tests and be able to calculate and interpret associated measures.
- Know the uses and principles of public health surveillance and the types of surveillance systems and approaches used in disease surveillance.
- Understand the global, cultural, and social context of health problems and how these influence the conduct, interpretation, and dissemination of research.
- Understand and apply the concepts of human subjects protections and confidentiality, and awareness of particular issues relevant to the study of specific populations.
- Understand and adhere to the principles of communicating epidemiologic research methods and results honestly and with integrity.
- Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct as they apply to Population Health Sciences.

## PEOPLE

**Faculty:** Professors Nieto (chair), Cruickshanks, Durkin, Kanarek, Mullahy, Oliver, Palta, Patz, Remington, M. Smith, Wolfe, Young; Associate Professors Astor, Bautista, Engelman, Gangnon, Jacobs, Martinez-Donate, Olson, Peppard, Sethi, Si, Timberlake, Trentham-Dietz, Vanness; Assistant Professors M. Burns, DuGoff, Malecki, Pillai; CHS Professor Brokopp

## POPULATION HEALTH, PH.D.

The Department of Population Health Sciences, part of the School of Medicine and Public Health, strives to provide leadership in the emerging, integrative field of population health. Its mission is to create, integrate, disseminate, and apply knowledge promoting the most efficient, equitable, and effective possible use of resources to maintain and improve the health of populations.

The department offers two graduate degree programs: an M.S. and a Ph.D. in population health and an M.S. and Ph.D. in epidemiology. Concentrations are available in epidemiology, health services research, social and behavioral health sciences, and clinical research.

The research-oriented degree programs are designed to provide rigorous, interdisciplinary training to develop students' abilities to synthesize knowledge and skills needed to address today's health-related problems. Methodological and analytical training is grounded in biostatistics, epidemiology, and health services research, but also emphasizes methods employed in the social sciences and econometrics that contribute to the study of health in populations. While the program is based on a sequence of core courses, students, in consultation with their major professor, have the flexibility to design advanced study and research that best prepares them for their chosen area of interest.

Individuals choose this program because of its innovative approach, strong research focus, and personal attention to students. It is an ideal option for those considering a broad array of fields including epidemiology, public health, health policy, health economics, health services research, environmental health, industrial engineering, demography, and more. UW–Madison ranks as one of the most prolific research universities in the world, consistently placing in the top five among American public universities for research expenditures. The program's interdisciplinary focus allows students the flexibility to work with a wide array of research/faculty on campus. For instance, program faculty include members from a number of other departments such as business, family medicine, industrial engineering, law, medical history and bioethics, medicine, nursing, ophthalmology, public affairs, sociology, and veterinary medicine. The multidisciplinary faculty coupled with the diverse backgrounds of the students provides a rich and stimulating training environment.

Faculty, staff, and students in the Department of Population Health Sciences engage in a wide variety of epidemiological and health services world-class research projects to understand determinants of health and health problems in populations, to analyze public and clinical health policies, and to improve the effectiveness and efficiency of healthcare. Research topics may include (but are not limited to) chronic, infectious, and environmental disease epidemiology; public health; studies of medical outcomes; health economics; the determinants and measurement of population health status; and health administration and policy. These multidisciplinary research programs may include (but are

not limited to) the study the effects and interactions of genetic traits; biologic and metabolic processes; pathogens; pollutants; lifestyles; behaviors; economic social and physical environments; and public health and health care systems on the health of populations. Methods employed involve developing and maintaining long term cohort studies, disease registries, population surveys, and retrospective analyses of large observational databases. Researchers in the department also work to advance methodology in health economics, population health evaluation, and statistical analyses.

For more information, see the graduate program Academic Guide (<http://www.pophealth.wisc.edu/Current-Students/Policy-Procedures/Handbooks>).

## FUNDING

Students admitted to our degree programs are automatically considered for any available scholarships, traineeships, or graduate assistant positions in the department. The most common forms of funding support for our students are assistantships, traineeships, and fellowships.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D., with available named option in Epidemiology

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

39 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

100% of all coursework taken as a graduate student must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count a maximum of 12 credits of graduate coursework taken from other institutions as a graduate student. coursework earned five or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 12 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
POP HLTH/B M I 451	Introduction to SAS Programming for Population Health	2
POP HLTH/B M I 551	Introduction to Biostatistics for Population Health	3
POP HLTH/B M I 552	Regression Methods for Population Health	3
POP HLTH/B M I 651	Advanced Regression Methods for Population Health	3
POP HLTH 795	Principles of Population Health Sciences	1-3
POP HLTH 796	Introduction to Health Services Research	3
POP HLTH/SOC 797	Introduction to Epidemiology	3
POP HLTH 798	Epidemiologic Methods	3
POP HLTH 820	Graduate Research Seminar	1
Select a minimum of 1 credit of medical ethics		
POP HLTH 794	Biological Basis of Population Health <sup>1</sup>	2

<sup>1</sup> Some students must complete this course.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a 10-credit minor.

## OVERALL GRADUATE GPA REQUIREMENT

Students must maintain a cumulative GPA of at least 3.25 in all graduate work (including transfer credits) unless conditions for probationary status require higher grades. Students must also maintain a cumulative GPA of 3.25 or better in all coursework completed while enrolled in the population health graduate program. No grade of BC or lower in epidemiology required courses will be accepted for the degree.

## OTHER GRADE REQUIREMENTS

Maintain no more than 6 credits of Incomplete (I) grades during any semester.

## PROBATION POLICY

A student not meeting guidelines for satisfactory progress will be placed on probation for one semester and will be reviewed by the steering committee following the probationary semester. Students may be dropped or allowed to continue by the committee based on review of progress during the probationary semester.

## ADVISOR / COMMITTEE

All students will have a hold placed on their registration each semester. Students must meet with their advisor once each semester for academic advising to have the hold removed.

## ASSESSMENTS AND EXAMINATIONS

Full-time students have up until the end of their third year to pass the qualifying exam and their first sitting must occur no later than the end of their second year. Part-time students are expected to pass the exam before the end of their fourth year (regardless of whether the student is continuously enrolled) and their first sitting must occur no later than the end of their third year.

## TIME CONSTRAINTS

Dissertation required. Doctoral students have a maximum of five years from the date of passing the preliminary examination to take the final oral examination and deposit the dissertation.

Doctoral degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Applications are welcome from students with diverse academic backgrounds. Students with strong academic preparation in the biological/medical sciences, quantitative analysis, and/or population health related social sciences are strongly encouraged to apply. Historically, many applicants who have succeeded in our program have come to the program with backgrounds in fields as diverse as microbiology, genetics, nutritional sciences, medicine, nursing, pharmacy, veterinary medicine, environmental sciences, political sciences, business, sociology, education, engineering, psychology, and economics.

Minimum requirements are:

1. Applicants must have an undergraduate degree with a grade point average of 3.0 (on a 4.0 scale), although successful applicants generally have GPAs above 3.0.
2. GRE are required for admission. The scores must be no more than five years old at the time of application. For applicants who have completed a doctoral degree, GRE scores are preferred but the program will accept scores for the entrance exam required for the doctoral degree (e.g., MCAT, LSAT). Students should contact the graduate program coordinator to find out if their scores are competitive.
3. Applicants whose native language or language of study is not English must submit official TOEFL scores. Scores must be no more than five years old at the start of the semester for which an applicant is applying. Further details are available on the Graduate School website (<http://grad.wisc.edu/admissions/requirements>). Note that the minimum test scores for the program are higher than those required by the Graduate School. For the Test of English as a Foreign Language, TOEFL (<http://www.toefl.org>), a minimum score of 580 (written), 237 (computer-based), or 92 (Internet-based) or above is absolutely required.

4. At least one semester of advanced quantitative preparation (calculus is strongly preferred) with a grade of B or better.
5. A personal statement and three letter of recommendation are required.
6. Applicants must meet both the above departmental admission requirements and the Graduate School admission requirements.

Upon entry to the graduate programs, students are matched with a faculty advisor. Faculty advisors help students hone their interests, assist with identifying research projects, provide support for career development, and link students to the greater campus community. Students have the benefit of regular dialogues with faculty members. Seminars and integrated discussion groups allow for increased interaction with core faculty and community lecturers. Finally, the work of students is valued as evidenced by their entries in the annual department poster session, participation in public health symposia, authorship of publications, and involvement in community/research projects.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### HEALTH SERVICES RESEARCH

- Understand and apply principles of population health science in characterizing: a) the multiple determinants of health; and b) the allocation of resources across those determinants and its influence on health and health disparities.
- Understand and apply principles of microeconomic theory relating to human and institutional decisions in the allocation of scarce resources for the production of health at individual, system and population levels.
- Understand and apply the principles of health outcomes measurement and its role in the design of health services, policy, intervention and evaluation.
- Understand and apply the methods of econometric analysis in relating models of economic behavior, processes and interventions to the utilization and cost of health services and/or the production of health.
- Describe the historical and current organization, delivery and financing of health care services in the United States.
- Describe the historical and current role of government in the regulation, provision and financing of health care services in the United States.
- Describe the role of social institutions, culture and behavior on the production of health at individual, system and population levels.
- Apply economic principles to describe, predict and evaluate the impact of government policy on the production of health and health care.
- Understand advantages and disadvantages of experimental, quasi-experimental and observational study designs for the evaluation of interventions, policies and processes that affect utilization and cost of health services and/or the production of health.
- Have a working knowledge of the availability, use, advantages and limitations of various sources of publicly available and/or electronically captured data on health care utilization and outcomes, including but not limited to: major surveys of healthcare utilization, electronic medical records and administrative claims datasets.

### BIOSTATISTICS

- Be thoroughly familiar with how to organize and manipulate data and perform basic statistical analyses in at least one major statistical software package (SAS, Stata, or R, perhaps SPSS is sufficient for some).
- Be familiar with the basic concepts of probability, random variation and commonly used statistical probability distributions and their applications in health research.
- Understand the foundations of statistical inference such as parameters, estimators, hypothesis tests and confidence intervals.
- Be able to describe samples appropriately, using measures of central tendency and dispersion.
- Know and assess assumptions and types of data needed for different common approaches to compare samples and be able to conduct and interpret these comparisons.
- Fit and interpret the results from linear, logistic and Cox regression models (including logistic models with multiple outcome categories and those for case-control data).
- Understand and be able to assess the assumptions of linear, logistic and Cox models.
- Explain the results of the above statistical analyses in subject matter terms to researchers and health professionals.
- Understand how measures of association, risk and rate learned in epidemiology courses relate to estimators arising from the above models.
- Apply the concepts of intermediate variables, confounding variables, and interacting variables in the process of variable selection and model building.
- Possess a high level of comfort in analyzing real data.
- Possess a high level of facility in interpreting results from regression analysis.
- Understanding some of the theoretical underpinnings of statistics—especially as needed to read articles from statistical journals and software manuals and apply new methods.
- Know how to analyze longitudinal and other correlated (hierarchical) data as well as survival data, be able to interpret results and assess assumptions.
- Master at greater depth the aspects of above that apply to the dissertation.
- Master additional areas of statistics that apply to the dissertation.

### EPIDEMIOLOGY

- Have basic knowledge of human physiology and pathophysiology, with special competence in the aspects of health addressed in the student's thesis or dissertation.
- Know the methods and measures of descriptive epidemiology, including case definition, calculation of the primary measures of disease morbidity and mortality, and appropriate comparisons by person, place and time.
- Be familiar with major disease categories and leading causes of death, their general pathophysiology, descriptive epidemiology & risk factors, and with the multiple determinants of health, including social, behavioral and other influences on the health of individuals and populations.
- Understand the concepts and practical implications of random and systematic errors (i.e. sampling error and bias: information, selection and confounding bias) as they apply to causal inferences in observational studies.

- Understand the concepts and practical implications of interaction, effect modification, and mediation of causal effects in observational studies.
- Identify the basic study designs used in epidemiologic research and know the advantages and disadvantages of each (including cross-sectional, case-control, cohort, and randomized trials).
- Understand principles of causal inference in epidemiologic studies and be able to critique, use or discuss them in the context of evaluating evidence. This includes application of the counterfactual model in estimation of causal effects and the ability to explain assumptions needed for valid estimation of causal effects in epidemiologic studies.
- Be familiar with publicly available national and international data sources and resources, and know how to start accessing them.
- Read and critique studies with respect to most common biases (confounding, selection bias, and information bias), as well as role of random error, and interpretation of results.
- Synthesize available information by searching, review and critically evaluating the literature.
- Have in depth knowledge of at least one health condition, disease or risk factor area.
- Have in depth understanding of at least one methodological issue that arises in epidemiologic research.
- Know the uses and principles of screening, including the concepts of validity and reliability of screening tests and be able to calculate and interpret associated measures.
- Know the uses and principles of public health surveillance and the types of surveillance systems and approaches used in disease surveillance.
- Understand the global, cultural, and social context of health problems and how these influence the conduct, interpretation, and dissemination of research.
- Understand and apply the concepts of human subjects protections and confidentiality, and awareness of particular issues relevant to the study of specific populations.
- Understand and adhere to the principles of communicating epidemiologic research methods and results honestly and with integrity.
- Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.
- Relative to #6 above, have a more in-depth knowledge of study designs used in epidemiologic research (including cross-sectional studies, case-control studies, cohort studies, and randomized trials).
- Be able to identify meaningful gaps in knowledge.
- Formulate an original, key hypothesis or statement of a research problem.
- Design a study using any relevant study design (including clinical trial, community trial) OR one based on creative use of existing data. Understand the advantages and limitations of each design for addressing specific problems, as well as practical aspects of their uses, including trade-offs.
- In addition to item 9 above, be able to identify and minimize sources of bias in the chosen study design; describe both the direction and magnitude of the bias and the effect of potential biases on the measures of association.
- Understand the basics of population sampling methods.
- Assess validity of data collection tools for both exposures and outcomes; and the presence, magnitude and impact of measurement error.
- Interpret research results, and recognize their implications for future research needs and for population health and health policy.
- Communicate research results orally and in writing to both scientists and non- scientists.
- Demonstrate mastery of a substantive area, including knowledge and application of that knowledge in conducting original research related to a specific topic.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct as they apply to Population Health Sciences.

## PEOPLE

**Faculty:** Professors Nieto (chair), Cruickshanks, Durkin, Kanarek, Mullahy, Oliver, Palta, Patz, Remington, M. Smith, Wolfe, Young; Associate Professors Astor, Bautista, Engelman, Gangnon, Jacobs, Martinez-Donate, Olson, Peppard, Sethi, Si, Timberlake, Trentham-Dietz, Vanness; Assistant Professors M. Burns, DuGoff, Malecki, Pillai; CHS Professor Brokopp



# PSYCHOLOGY

**Administrative Unit:** Psychology

**College/School:** College of Letters & Science

**Admitting Plans:** Ph.D.

**Degrees Offered:** M.A., M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The Department of Psychology has fostered excellence in research and scholarship for more than 100 years. The department provides graduate students with the best available training to prepare them for a variety of professional careers in academic, clinical, research, and other settings. Emphasis is on both extensive academic training in general psychology and intensive research training in the student's area of concentration.

The department expects students to become creative scientists and to exhibit an early and continuing commitment to research and scholarship. All students initiate a first-year research project and present the results to the entire department in the fall of the second year. Typically, students are admitted for graduate study in psychology only for the Ph.D. program; however, students admitted to psychology may obtain a master's degree after they have completed their first-year research project if they find it necessary to have a degree as formal evidence of progress toward the Ph.D.

Many students have several significant publications before receiving the Ph.D. degree. Additionally, many students also receive NSF or NIH predoctoral fellowships and other awards during their course of study within the program. To support professional development, small grants fund student research and travel to present work at national conferences. The department hosts two training grants from NIH, one focused on Emotion and one focused on Language, that each support several predoctoral students.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Psychology, Doctoral Minor (p. 649)
- Psychology, M.A. (p. 649)
- Psychology, M.S. (p. 652)
- Psychology, Ph.D. (p. 654)

## RESOURCES

### FACILITIES

The department has an extraordinary array of research facilities. Virtually all laboratories are fully computer controlled, and the department's general purpose computing facilities are freely available to all graduate students. The Brogden Building and the Harlow Primate Laboratory have special facilities for housing animals, as well as for behavioral, pharmacological, anatomical, immunological, and physiological studies. The department is well-equipped for studies of visual, auditory, and language perception and other areas of cognitive psychology. In addition, the Psychology Department Research and Training Clinic is housed in the Brogden Building. See Research Labs (<http://psych.wisc.edu/research-centers.htm>) for further information about individual faculty research labs and facilities. Connections with other departments and research

institutes on campus (e.g., W.M. Keck Laboratory for Functional Brain Imaging and Behavior, and others) have been described above.

## PEOPLE

**Faculty:** Professors Goldsmith (chair), Abramson, Alibali, A. Auger, Berridge, Brauer, Coe, Curtin, Davidson, Devine, Gernsbacher, Gooding, Harackiewicz, Hyde, Jenison, MacDonald, Marler, Niedenthal, Pollak, Postle, Rogers, Rosengren, Ryff, Saffran, Seidenberg; Associate Professors Bennett, Miyamoto, Shutts; Assistant Professors Green, Li, Lupyan, Rokers, Saalman, Simmering. Affiliated Faculty: Bakshi, Bolt, Dilworth-Bart, Edwards, Ellis-Weismer, Gammie, Hermann, Johnson, Kalin, Kalish, Koenigs, Litovsky, Lutfi, MacLean, Nathan, Nitschke, Piper, Populin, Ritters, Sanchez, Schneider

## PSYCHOLOGY, DOCTORAL MINOR

The Department of Psychology offers broad training aimed at better understanding human behavior, both typical and atypical. At the graduate level, the department provides training in five key areas in the field of psychological science: biological, clinical, cognitive, developmental, and social and personality. The primary goal is to develop critical thinking as it relates to interpretation of experimental observations. This includes an emphasis on quantitative tools used to analyze experimental data.

## REQUIREMENTS

Nine (9) credits of graduate-level coursework. Proseminars and research credits do not count toward the minor.

## ADMISSIONS

Please contact the graduate program coordinator at [gradinfo@psych.wisc.edu](mailto:gradinfo@psych.wisc.edu) or 608-262-2079.

## PEOPLE

**Faculty:** Professors Goldsmith (chair), Abramson, Alibali, A. Auger, Berridge, Brauer, Coe, Curtin, Davidson, Devine, Gernsbacher, Gooding, Harackiewicz, Hyde, Jenison, MacDonald, Marler, Niedenthal, Pollak, Postle, Rogers, Rosengren, Ryff, Saffran, Seidenberg; Associate Professors Bennett, Miyamoto, Shutts; Assistant Professors Green, Li, Lupyan, Rokers, Saalman, Simmering. Affiliated Faculty: Bakshi, Bolt, Dilworth-Bart, Edwards, Ellis-Weismer, Gammie, Hermann, Johnson, Kalin, Kalish, Koenigs, Litovsky, Lutfi, MacLean, Nathan, Nitschke, Piper, Populin, Ritters, Sanchez, Schneider

## PSYCHOLOGY, M.A.

The Department of Psychology has fostered excellence in research and scholarship for more than 100 years. The department provides graduate students with the best available training to prepare them for a variety of professional careers in academic, clinical, research, and other settings. Emphasis is on both extensive academic training in general psychology and intensive research training in the student's area of concentration.

The department expects students to become creative scientists and to exhibit an early and continuing commitment to research and scholarship. All students initiate a first-year research project and present the results to the entire department in the fall of the second year. Typically, students are admitted for graduate study in psychology only for the Ph.D. program; however, students admitted to psychology may obtain a master's degree after they have completed their first-year research project if they find it necessary to have a degree as formal evidence of progress toward the Ph.D.

Faculty members and graduate students have many affiliations with other departments, institutes, and training programs: Institute on Aging, Waisman Center on Mental Retardation and Human Development, Wisconsin Regional Primate Research Center, Health Emotions Center, Neuroscience Training Program, Keck Neuroimaging Center, Hearing Training Program, Women's Studies Research Center, Institute for Research on Poverty, NSF National Consortium on Violence Research, Mass Communications Research Center, and Survey Research Laboratory. There are strong ties to the departments of Anatomy, Anthropology, Communicative Disorders, Educational Psychology, Entomology, Forest and Wildlife Ecology, Medical Microbiology and Immunology, Industrial Engineering, Ophthalmology, Psychiatry, Sociology, and Zoology.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Applying prior coursework toward the graduate degree is allowed only in exceptional circumstances. In total, only 6 credits maximum may be applied from prior coursework, including any prior coursework from graduate work from other institutions, from a UW–Madison undergraduate degree or from the UW–Madison University Special career. Coursework earned five or more years prior to admission to the program may not be used to satisfy master's degree requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Applying prior coursework toward the graduate degree is allowed only in exceptional circumstances. In total, only 6 credits maximum may be applied from prior coursework, including any prior coursework from graduate work from other institutions, from a UW–Madison undergraduate degree or from the UW–Madison University Special career. Coursework earned five or more years prior to admission to the program may not be used to satisfy master's degree requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

Applying prior coursework toward the graduate degree is allowed only in exceptional circumstances. In total, only 6 credits maximum may be applied from prior coursework, including any prior coursework from graduate work from other institutions, from a UW–Madison undergraduate degree or from the UW–Madison University Special career. Coursework earned five or more years prior to admission to the program may not be used to satisfy master's degree requirements.

### CREDITS PER TERM ALLOWED

12 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Must take PSYCH 610 Statistical Analysis of Psychological Experiments, PSYCH 710 Design and Analysis of Psychological Experiments, complete required First-Year Project and reach 30 credits to receive master's.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

An applicant is admitted into the program by an individual faculty member or by an area group (i.e., a group of faculty members associated with a major area of concentration) and not by the department as a whole, nor by an admissions committee. Because these programs tend to be small, they may not admit students in a particular year. Applicants interested in a particular program or working with a particular faculty member should reference graduate program (<http://psych.wisc.edu/graduate-program.htm>) on the psychology website or contact individual faculty members to determine if admissions are likely for that year.

Each faculty member and area group give preference to applicants who have a high potential for success in graduate school and who also share research interests with the prospective faculty sponsor. Applicants should consider carefully the description of faculty research interests, read several of their publications, and consult with faculty and advisors at the undergraduate institution before applying to the program. Whereas most applicants have majored in psychology, the department gives full consideration to applicants with undergraduate majors in other relevant areas.

Given its commitment to students, the Department of Psychology takes seriously its responsibility when admitting an applicant. Every piece of information is considered carefully. Students are selected on the basis of record of academic achievement, Graduate Record Exam (GRE) scores, references, evidence of motivation and ability to do research, and also the fit between faculty and student research interests.

Information regarding applications deadlines is on the program website (<http://psych.wisc.edu/graduate-admission-and-requirements.htm>).

Applicants should have a completed application in by the deadline to ensure full consideration. Most students admitted into the program are supported by either a research or project assistantship, teaching assistantship, or fellowship.

## ADMISSION SELECTION CRITERIA

Although individual faculty members and area groups decide who will be admitted, the psychology department sets certain minimum standards that must be met by those admitted to the graduate program. These are an undergraduate grade point average (GPA) of at least 3.0 on a 4.0 scale as well as verbal and quantitative scores on the GRE that sum to at least 310.

Consideration for admission is highly competitive. The department receives approximately 400 applications each year and less than 10 percent are admitted to the program. Applicants who fall below the

minimum standards set by the department may still be admitted where there is clear justification (e.g., international students or minority group students whose GRE scores may not be an indicator of potential for graduate work, or students who are below the minimum requirement in one respect but well above it in other respects).

Undergraduate research experience is highly valued in applicants to the program and greatly enhances their chances of admission. Such research experience provides an opportunity to discover whether research is of interest and provides evidence of motivation and ability to do research.

Three references are required and are read very carefully. Good letters in favor of the applicant are essential and should be provided by faculty who know the applicant fairly well. The references should provide information that will evaluate potential for graduate work beyond that revealed by GPA and GRE scores. For example, a reference from a professor who writes about a student's unique skills, research abilities, and motivation is more influential than a reference that says the student received an "A" and was "very pleasant." Thus, references from faculty the applicant has worked with on a research project or senior thesis carry more weight in making a decision to admit.

In addition to references, grades, and Graduate Record Exam (GRE) scores, the faculty also consider carefully the personal statement.

Applicants should describe in the personal statement any prior research experience and their role in that research.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will develop a broad understanding of the field of psychology.
- Students will develop a proficiency in statistical analyses relevant to psychological research.
- Students will acquire basic understanding in experimental design.
- Students will develop literature research and critical thinking skills used in psychological research and teaching.

### PROFESSIONAL CONDUCT

- Students will develop skills for oral and written communication of experimental findings.
- Students will develop literature research and critical thinking skills used in psychological research and teaching.

## PEOPLE

**Faculty:** Professors Goldsmith (chair), Abramson, Alibali, A. Auger, Berridge, Brauer, Coe, Curtin, Davidson, Devine, Gernsbacher, Gooding, Harackiewicz, Hyde, Jenison, MacDonald, Marler, Niedenthal, Pollak, Postle, Rogers, Rosengren, Ryff, Saffran, Seidenberg; Associate Professors Bennett, Miyamoto, Shutts; Assistant Professors Green, Li, Lupyán, Rokers, Saalman, Simmering. Affiliated Faculty: Bakshi, Bolt, Dilworth-Bart, Edwards, Ellis-Weismer, Gammie, Hermann, Johnson, Kalin, Kalish, Koenigs, Litovsky, Lutfi, MacLean, Nathan, Nitschke, Piper, Populin, Ritters, Sanchez, Schneider

## PSYCHOLOGY, M.S.

The Department of Psychology has fostered excellence in research and scholarship for more than 100 years. The department provides graduate students with the best available training to prepare them for a variety of professional careers in academic, clinical, research, and other settings. Emphasis is on both extensive academic training in general psychology and intensive research training in the student's area of concentration.

The department expects students to become creative scientists and to exhibit an early and continuing commitment to research and scholarship. All students initiate a first-year research project and present the results to the entire department in the fall of the second year. Typically, students are admitted for graduate study in psychology only for the Ph.D. program; however, students admitted to psychology may obtain a master's degree after they have completed their first-year research project if they find it necessary to have a degree as formal evidence of progress toward the Ph.D.

Faculty members and graduate students have many affiliations with other departments, institutes, and training programs: Institute on Aging, Waisman Center on Mental Retardation and Human Development, Wisconsin Regional Primate Research Center, Health Emotions Center, Neuroscience Training Program, Keck Neuroimaging Center, Hearing Training Program, Women's Studies Research Center, Institute for Research on Poverty, NSF National Consortium on Violence Research, Mass Communications Research Center, and Survey Research Laboratory. There are strong ties to the departments of Anatomy, Anthropology, Communicative Disorders, Educational Psychology, Entomology, Forest and Wildlife Ecology, Medical Microbiology and Immunology, Industrial Engineering, Ophthalmology, Psychiatry, Sociology, and Zoology.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.A., M.S.

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Applying prior coursework toward the graduate degree is allowed only in exceptional circumstances. In total, only 6 credits maximum may be applied from prior coursework, including any prior coursework from graduate work from other institutions, from a UW–Madison undergraduate degree or from the UW–Madison University Special career. Coursework earned five or more years prior to admission to the program may not be used to satisfy master's degree requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Applying prior coursework toward the graduate degree is allowed only in exceptional circumstances. In total, only 6 credits maximum may be applied from prior coursework, including any prior coursework from graduate work from other institutions, from a UW–Madison undergraduate degree or from the UW–Madison University Special career. Coursework earned five or more years prior to admission to the program may not be used to satisfy master's degree requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

Applying prior coursework toward the graduate degree is allowed only in exceptional circumstances. In total, only 6 credits maximum may be applied from prior coursework, including any prior coursework from graduate work from other institutions, from a UW–Madison undergraduate degree or from the UW–Madison University Special career. Coursework earned five or more years prior to admission to the program may not be used to satisfy master's degree requirements.

### CREDITS PER TERM ALLOWED

12 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Must take PSYCH 610 Statistical Analysis of Psychological Experiments, PSYCH 710 Design and Analysis of Psychological Experiments, complete required First-Year Project and reach 30 credits to receive master's.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

An applicant is admitted into the program by an individual faculty member or by an area group (i.e., a group of faculty members associated with a major area of concentration) and not by the department as a whole, nor by an admissions committee. Because these programs tend to be small, they may not admit students in a particular year. Applicants interested in a particular program or working with a particular faculty member should reference graduate program (<http://psych.wisc.edu/graduate-program.htm>) on the psychology website or contact individual faculty members to determine if admissions are likely for that year.

Each faculty member and area group give preference to applicants who have a high potential for success in graduate school and who also share research interests with the prospective faculty sponsor. Applicants should consider carefully the description of faculty research interests, read several of their publications, and consult with faculty and advisors at the undergraduate institution before applying to the program. Whereas most applicants have majored in psychology, the department gives full consideration to applicants with undergraduate majors in other relevant areas.

Given its commitment to students, the Department of Psychology takes seriously its responsibility when admitting an applicant. Every piece of information is considered carefully. Students are selected on the basis of record of academic achievement, Graduate Record Exam (GRE) scores, references, evidence of motivation and ability to do research, and also the fit between faculty and student research interests.

Information regarding applications deadlines is on the program website (<http://psych.wisc.edu/graduate-admission-and-requirements.htm>). Applicants should have a completed application in by the deadline to ensure full consideration. Most students admitted into the program are supported by either a research or project assistantship, teaching assistantship, or fellowship.

## ADMISSION SELECTION CRITERIA

Although individual faculty members and area groups decide who will be admitted, the psychology department sets certain minimum standards that must be met by those admitted to the graduate program. These are an undergraduate grade point average (GPA) of at least 3.0 on a 4.0 scale as well as verbal and quantitative scores on the GRE that sum to at least 310.

Consideration for admission is highly competitive. The department receives approximately 400 applications each year and less than 10 percent are admitted to the program. Applicants who fall below the minimum standards set by the department may still be admitted where there is clear justification (e.g., international students or minority group students whose GRE scores may not be an indicator of potential for graduate work, or students who are below the minimum requirement in one respect but well above it in other respects).

Undergraduate research experience is highly valued in applicants to the program and greatly enhances their chances of admission. Such research experience provides an opportunity to discover whether research is of interest and provides evidence of motivation and ability to do research.

Three references are required and are read very carefully. Good letters in favor of the applicant are essential and should be provided by faculty who know the applicant fairly well. The references should provide information that will evaluate potential for graduate work beyond that revealed by GPA and GRE scores. For example, a reference from a professor who writes about a student's unique skills, research abilities, and motivation is more influential than a reference that says the student received an "A" and was "very pleasant." Thus, references from faculty the applicant has worked with on a research project or senior thesis carry more weight in making a decision to admit.

In addition to references, grades, and Graduate Record Exam (GRE) scores, the faculty also consider carefully the personal statement.

Applicants should describe in the personal statement any prior research experience and their role in that research.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will develop a broad understanding of the field of psychology.
- Students will develop a proficiency in statistical analyses relevant to psychological research.
- Students will acquire basic understanding in experimental design.
- Students will develop literature research and critical thinking skills used in psychological research and teaching.

### PROFESSIONAL CONDUCT

- Students will develop skills for oral and written communication of experimental findings.
- Students will develop literature research and critical thinking skills used in psychological research and teaching.

## PEOPLE

**Faculty:** Professors Goldsmith (chair), Abramson, Alibali, A. Auger, Berridge, Brauer, Coe, Curtin, Davidson, Devine, Gernsbacher, Gooding, Harackiewicz, Hyde, Jenison, MacDonald, Marler, Niedenthal, Pollak, Postle, Rogers, Rosengren, Ryff, Saffran, Seidenberg; Associate Professors Bennett, Miyamoto, Shutts; Assistant Professors Green, Li, Lupyan, Rokers, Saalman, Simmering. Affiliated Faculty: Bakshi, Bolt, Dilworth-Bart, Edwards, Ellis-Weismer, Gammie, Hermann, Johnson, Kalin, Kalish, Koenigs, Litovsky, Lutfi, MacLean, Nathan, Nitschke, Piper, Populin, Ritters, Sanchez, Schneider

## PSYCHOLOGY, PH.D.

Psychology offers six areas of concentration (known as area groups): biological, clinical, cognitive and cognitive neuroscience, developmental, perception, and social and personality. Although there is a good deal of collaboration and interaction across groups, each area of concentration has its own requirements for graduate study and students are typically admitted into one of these areas of concentration.

Although most incoming graduate students' interests fall within these six areas of concentration, some do not. That some students' interests cut across disciplinary area groups and/or interface with other programs on campus is to be expected in a top-notch department because the boundaries of psychology itself are in flux. An innovative feature of the program is the Individualized Graduate Major designed for those graduate students who do not find a niche in the current area group structure and, instead, wish to cross area group lines and/or incorporate substantial training from other programs in their psychology graduate work. It is important to emphasize that the Individualized Graduate Major leads to a psychology Ph.D. and is not appropriate for students whose graduate study does not emphasize psychological science. Such students are advised to pursue a Ph.D. in another program or a committee degree.

Faculty members and graduate students have many affiliations with other departments, institutes, and training programs: Institute on Aging, Waisman Center on Mental Retardation and Human Development, Wisconsin Regional Primate Research Center, Health Emotions Center, Neuroscience Training Program, Keck Neuroimaging Center, Hearing Training Program, Women's Studies Research Center, Institute for Research on Poverty, NSF National Consortium on Violence Research, Mass Communications Research Center, and Survey Research Laboratory. There are strong ties to the departments of Anatomy, Anthropology, Communicative Disorders, Educational Psychology, Entomology, Forest and Wildlife Ecology, Medical Microbiology and Immunology, Industrial Engineering, Ophthalmology, Psychiatry, Sociology, and Zoology.

## BIOLOGY OF BRAIN AND BEHAVIOR

The *biological psychology* area encompasses the subdisciplines of behavioral neuroscience and animal behavior. Students sponsored by faculty in this area are trained in theory and methods required for understanding the biological bases of behavior. The doctoral track in behavioral neuroscience provides research training in specific methods and techniques needed to assess brain and peripheral physiological mechanisms. Topic areas investigated by program faculty include psychoneuroimmunology, hormone-behavior relationships, neurobiology

of stress and arousal, sensory processes, and the neural organization of the cerebral cortex. Age-related changes during development, and the impact of stress on health and behavior are also important foci. Students learn modern surgical, neuroanatomical, neurophysiological, neuroimaging (PET, MRI), immunohistochemical, pharmacological, and behavioral techniques. Training in hormone and immune assays, or cellular recording, are also provided when required for the student's research. Conceptual issues, such as experimental design, and the relevance to human clinical and social conditions are emphasized.

Students in the program can also pursue training in theories and methodologies involved in the study of animal behavior. Coursework and research provide a unique interdisciplinary experience with a strong emphasis on evolutionary/ecological principles and proximate mechanisms, including communication and the role of hormones and social relationships underlying the expression of behavior. The program goal is to train outstanding students with a special interest in integrating knowledge across traditional discipline lines.

Many facilities are available for graduate training, including the department's Harlow Primate Laboratory, internationally known for its studies of primate development and learning, and the Callitrichid Behavior Laboratory, renowned for research on communication, reproduction, and conservation. In addition, students benefit from the Wisconsin Regional Primate Research Center with its large rhesus monkey and marmoset colonies. Within the Brogden Psychology Building, research programs utilize many other small animal species. Well-equipped facilities are available, including surgical suites, histology, electrophysiology, endocrine, and immunology laboratories.

The program continues to grow and incorporate new perspectives. Students and faculty interact and collaborate with the departments of Anthropology, Comparative Biosciences, Forest and Wildlife Ecology, and Zoology, as well as the Neurosciences Training Program, Institute on Aging, and Center for Excellence in Women's Health Research. The university provides a diverse and stimulating academic environment for training in biological psychology.

## CLINICAL PSYCHOLOGY

The training model for the UW-Madison doctoral program in clinical psychology is that of a scientist-practitioner. Based on the program's endorsement of a scientist-practitioner model, the educational plan focuses on two major and interrelated goals that integrate science and practice:

1. to produce graduates who have the requisite knowledge, skills, and experience to create and disseminate new knowledge about the processes and mechanisms underlying psychopathology; and
2. to produce graduates who have the requisite knowledge and skills for entry into the practice of professional clinical psychology and who understand and appreciate the importance of an empirical basis to clinical practice.

The program uses a mentor model for research training; applicants are admitted to the program based in part on how closely their research interests are aligned with that of current faculty. The close working relationship between the faculty mentor and the graduate student is one of the mechanisms that serves to integrate theory and research with the applied training. Coursework and practicum experiences comprise the other mechanisms that foster the integration of science and practice.

The interests of and methods utilized by faculty vary widely but all share the common goal of pursuing innovative, cutting edge analyses

of major forms of psychopathology. The program also offers excellent clinical training and in the course of their tenure in the program, graduate students in clinical psychology develop expertise in both assessment and treatment of psychopathology. However the student who is not deeply committed to research and scholarship will, in all likelihood, not be satisfied with the Wisconsin Clinical Program.

During their stay, clinical graduate students complete courses in assessment, clinical research methods, and a sequence of clinical core courses covering the etiology and treatment of psychopathology, in addition to statistics/methodology courses and coursework in nonclinical areas both in and outside of the department. The required curriculum may take more than five years to complete. The clinical program is situated in a world-class department that includes area groups in biology of brain and behavior, cognitive and cognitive neuroscience, developmental, perception, and social and personality. In addition, an Emotion Training Program within the department cuts across all other area groups and is supported by an NIMH training grant. Many clinical students and faculty are involved in various aspects of the Emotion Training Program. Clinical students have access to an extensive range of opportunities through collaborations with other units on campus including the Waisman Center, an interdisciplinary research institute for developmental research; the Institute on Aging; the Waisman Laboratory for Brain Imaging and Behavior; the Department of Psychiatry; and other departments in the Medical School, College of Letters & Science, and the School of Education.

A major goal of the program is to integrate students' clinical and research activities. Students begin their clinical practicum in the Psychology Department Research and Training Clinic (<http://psych.wisc.edu/clinic-research-and-training.htm>) during their third year in the program and typically continue such practicum training throughout the remainder of their graduate careers. An important component of clinical training is the "Small Group Practicum" in which various clinical professors supervise practicum activities on topics related to their own areas of interest. In the summer following the third academic year, the student is appointed to a clerkship in one of the several agencies that cooperate with the department in providing practicum training. Finally, all clinical students obtain at least one full year of full-time clinical experience in an approved internship facility. Whereas many students obtain internships at various of the better-known training centers around the country, other students complete their internships at one of the excellent local sites. Virtually all clinical graduate students have received financial support while in residence in the graduate program.

## COGNITIVE AND COGNITIVE NEUROSCIENCE (CCN)

The study of cognition and perception has undergone explosive growth during the past decade with exciting developments in psychology and related fields and with new techniques for studying mind and brain. The *cognitive and perceptual sciences* (CPS) area group provides a unique and stimulating graduate school experience for students interested in an interdisciplinary approach to cognition and perception. Faculty members combine expertise in cognition and perception with a broad arsenal of methods including experimental, developmental, computational, and biological approaches. This breadth in methodologies is paralleled by breadth across disciplines of communicative disorders, educational psychology, and neuroscience. Areas of exceptional strength in cognition include language development, speech perception, neural representation of language and memory, gesture, higher-level comprehension, music cognition, problem solving, and embodied cognition. Research in hearing

and vision includes perceptual development, perception of complex sounds, perception of 3-D layout and auditory space, attention, and neural processing of auditory and visual objects and events. Laboratory facilities are comprehensive and fully state of the art, enhanced by unique opportunities for training in neuroimaging at the Keck Laboratory for Functional Brain Imaging and in developmental methods at the Waisman Center. The program is committed to maintaining a collegial environment in which students collaborate with faculty in developing their research programs. Graduates with a Ph.D. from the program maintain careers as university or college professors, or as researchers at public or corporate laboratories.

## DEVELOPMENTAL PSYCHOLOGY

Research in the *developmental* area group focuses on the interrelationships of biological, environmental, and behavioral processes throughout the life span, and on the mechanisms and processes of change. The program emphasizes interdisciplinary studies, and allows graduate students flexibility in designing a program of study consonant with their goals and interests. One central part of the developmental program is a weekly lunch meeting, in which students and faculty present ongoing research and discuss current topics in the field. Students in the program focus on cognitive, emotional, language, perceptual, personality, social development, or relations between these areas. Within these content domains, students and faculty conduct research on both typical and atypical development, and work with individuals representing a wide range of ages, including infants, preschool and school-age children, adolescents, adults, and the elderly. Specific faculty research interests include the development of mathematical reasoning and problem solving, development of visual perception and attention, developmental behavioral genetics, gender role development, developmental psychopathology, resiliency in adulthood and aging, and language acquisition.

Participants in research studies are drawn from an unusually wide variety of sources, including local preschools and day care centers; public, and private schools in the Madison area; the Dane County Division of Children, Youth, and Families; the Wisconsin Longitudinal Survey; University of Wisconsin Hospitals and Clinics; and the Institute on Aging. Many developmental faculty are affiliated with the Waisman Center on Human Development, which provides a database of typically developing infants and children with developmental disabilities.

## SOCIAL AND PERSONALITY PSYCHOLOGY

The program is designed to train students for research on the cutting edge of the fields of *social and personality psychology*. The curriculum consists of a series of courses and seminars designed to provide students with a thorough introduction to the fields of social and personality psychology. This coursework is complemented by courses that provide the methodological and statistical skills necessary for several kinds of research. The primary emphasis is on experimental laboratory research, but training is also provided in field research, longitudinal studies, observational methods, and archival research. There are also opportunities to pursue theoretical issues in various applied areas (e.g., education, health psychology). The goal is to train students for productive academic careers in university settings. Students are provided with the opportunity to work collaboratively with one or more faculty members on a variety of research topics including: acculturation, achievement behavior, attitudes, competition, culture and cognition, emotion, goals and self-regulation, interest and intrinsic motivation, social cognition, social perception, social neuroscience, and stereotypes,

prejudice and intergroup relations. Students are also encouraged to develop their own independent lines of research.

Additional resources are available to students from outside the psychology department. The social psychology program in the sociology department shares faculty members and courses with the program in psychology and offers seminars that supplement those taught in psychology. In addition, resources are provided by the Mass Communications Research Center, the Institute for Research on Poverty, and the Survey Research Laboratory.

## FUNDING

Many students also receive NSF or NIH predoctoral fellowships and other awards during their course of study within the program. To support professional development, small grants fund student research and travel to present work at national conferences. The department hosts two training grants from NIH, one focused on Emotion and one focused on Language, that each support several predoctoral students.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

60 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

40 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of degree coursework (30 credits out of 60 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Applying prior coursework toward the graduate degree is allowed only in exceptional circumstances. In total, only 6 credits maximum may be applied from prior coursework, including any prior coursework from graduate work from other institutions, from a UW–Madison undergraduate degree or from the UW–Madison University Special career. Coursework earned ten or more years prior to admission to the program may not be used to satisfy doctoral degree requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Applying prior coursework toward the graduate degree is allowed only in exceptional circumstances. In total, only 6 credits maximum may be applied from prior coursework, including any prior coursework from graduate work from other institutions, from a UW–Madison undergraduate degree or from the UW–Madison University Special career. Coursework earned ten or more years prior to admission to the program may not be used to satisfy doctoral degree requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

Applying prior coursework toward the graduate degree is allowed only in exceptional circumstances. In total, only 6 credits maximum may be applied from prior coursework, including any prior coursework from graduate work from other institutions, from a UW–Madison undergraduate degree or from the UW–Madison University Special career. Coursework earned ten or more years prior to admission to the program may not be used to satisfy doctoral degree requirements.

### CREDITS PER TERM ALLOWED

12 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Must take PSYCH 610 Statistical Analysis of Psychological Experiments, PSYCH 710 Design and Analysis of Psychological Experiments, and complete required First-Year Project.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.



A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

An applicant is admitted into the program by an individual faculty member or by an area group (i.e., a group of faculty members associated with a major area of concentration) and not by the department as a whole, nor by an admissions committee. Because these programs tend to be small, they may not admit students in a particular year. Applicants interested in a particular program or working with a particular faculty member should reference graduate program (<http://psych.wisc.edu/graduate-program.htm>) on the psychology website or contact individual faculty members to determine if admissions are likely for that year.

Each faculty member and area group give preference to applicants who have a high potential for success in graduate school and who also share research interests with the prospective faculty sponsor. Applicants should consider carefully the description of faculty research interests, read several of their publications, and consult with faculty and advisors at the undergraduate institution before applying to the program. Whereas most applicants have majored in psychology, the department gives full consideration to applicants with undergraduate majors in other relevant areas.

Given its commitment to students, the Department of Psychology takes seriously its responsibility when admitting an applicant. Every piece of information is considered carefully. Students are selected on the basis of record of academic achievement, Graduate Record Exam (GRE) scores, references, evidence of motivation and ability to do research, and also the fit between faculty and student research interests.

Information regarding applications deadlines is on the program website (<http://psych.wisc.edu/graduate-admission-and-requirements.htm>).

Applicants should have a completed application in by the deadline to ensure full consideration. Most students admitted into the program are supported by either a research or project assistantship, teaching assistantship, or fellowship.

## ADMISSION SELECTION CRITERIA

Although individual faculty members and area groups decide who will be admitted, the psychology department sets certain minimum standards that must be met by those admitted to the graduate program. These are an undergraduate grade point average (GPA) of at least 3.0 on a 4.0 scale as well as verbal and quantitative scores on the GRE that sum to at least 310.

Consideration for admission is highly competitive. The department receives approximately 400 applications each year and less than 10 percent are admitted to the program. Applicants who fall below the minimum standards set by the department may still be admitted where there is clear justification (e.g., international students or minority group students whose GRE scores may not be an indicator of potential for graduate work, or students who are below the minimum requirement in one respect but well above it in other respects).

Undergraduate research experience is highly valued in applicants to the program and greatly enhances their chances of admission. Such research experience provides an opportunity to discover whether research is of interest and provides evidence of motivation and ability to do research.

Three references are required and are read very carefully. Good letters in favor of the applicant are essential and should be provided by faculty who know the applicant fairly well. The references should provide information that will evaluate potential for graduate work beyond that revealed by GPA and GRE scores. For example, a reference from a professor who writes about a student's unique skills, research abilities, and motivation is more influential than a reference that says the student received an "A" and was "very pleasant." Thus, references from faculty the applicant has worked with on a research project or senior thesis carry more weight in making a decision to admit.

In addition to references, grades, and Graduate Record Exam (GRE) scores, the faculty also consider carefully the personal statement.

Applicants should describe in the personal statement any prior research experience and their role in that research.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will be prepared to make meaningful contributions to research and teaching in psychology.

### PROFESSIONAL CONDUCT

- Students will develop a broad understanding of the field of psychology.

### ADDITIONAL LEARNING GOALS

- Students will develop a deep understanding of the theory and empirical observations related to their area of expertise.
- Students will develop a proficiency in statistical analyses relevant to psychological research.
- Students will develop expertise in experimental design.
- Students will develop literature research and critical thinking skills necessary for psychological research and undergraduate and graduate teaching.

- Students will acquire expertise in the oral and written communication of experimental findings.
- Clinical students will receive broad training in the theory and practice of clinical psychology.

## PEOPLE

**Faculty:** Professors Goldsmith (chair), Abramson, Alibali, A. Auger, Berridge, Brauer, Coe, Curtin, Davidson, Devine, Gernsbacher, Gooding, Harackiewicz, Hyde, Jenison, MacDonald, Marler, Niedenthal, Pollak, Postle, Rogers, Rosengren, Ryff, Saffran, Seidenberg; Associate Professors Bennett, Miyamoto, Shutts; Assistant Professors Green, Li, Lupyan, Rokers, Saalman, Simmering. Affiliated Faculty: Bakshi, Bolt, Dilworth-Bart, Edwards, Ellis-Weismer, Gammie, Hermann, Johnson, Kalin, Kalish, Koenigs, Litovsky, Lutfi, MacLean, Nathan, Nitschke, Piper, Populin, Ritters, Sanchez, Schneider

## REAL ESTATE AND URBAN LAND ECONOMICS

**Administrative Unit:** Real Estate and Urban Land Economics

**College/School:** School of Business

**Admitting Plans:** MBA, M.S.

**Degrees Offered:** MBA, M.S.

**Named Options:** Global Real Estate (GREM) (M.S.)

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE PROFESSIONAL/CERTIFICATES

- Business: Real Estate and Urban Land Economics, M.S. (p. 659)
- Business: Real Estate and Urban Land Economics, MBA (p. 661)

### PEOPLE

**Faculty:** Professors Yavas (chair), Malpezzi, Ortalo-Magn'e, Riddiough; Associate Professors Ghent, Quintin; Assistant Professors Diop, Luque

## BUSINESS: REAL ESTATE AND URBAN LAND ECONOMICS, M.S.

The M.S. degree in the School of Business is currently designed for students who wish to pursue very specialized studies within one of two specific fields: global real estate (in the Business: Real Estate and Urban Land Economics M.S.) and finance (within the Business: Finance, Investment and Banking M.S.). With previous undergraduate exposure to the functional areas of business, students are able to gain a more extensive focus in one of these two specific areas of business.

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School

of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## NAMED OPTION IN GLOBAL REAL ESTATE (GREM)

The global real estate master (GREM) program brings together students from top international business programs and the best in real estate education to provide the unique preparation needed to become a global leader. The GREM program is designed for those who would like to work anywhere in the real estate industry. Students will learn principles of real estate, finance, and development that apply universally and also be exposed to the variety of context and opportunities the global real estate industry offers. See the program website (<http://bus.wisc.edu/degrees-programs/msmacc/grem>) for more information.

### REQUIREMENTS

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available named option Global Real Estate (GREM)

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

M.S.: Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

M.S.–named option Global Real Estate: All coursework must be completed in courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.S.: With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.S.–named option Global Real Estate: With program approval, students are allowed to count no more than 14 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

## PRIOR COURSEWORK REQUIREMENTS FROM: UW–MADISON UNIVERSITY SPECIAL

M.S.: With program approval and payment of the difference in tuition (between special and graduate tuition), students are allowed to count no more than 9 credits of coursework numbered 700 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to the master's degree is not allowed to satisfy requirements.

M.S.–named option Global Real Estate: With program approval and payment of the difference in tuition (between special and graduate tuition), students are allowed to count no more than 14 credits of coursework numbered 700 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to the master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission consideration requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. Work experience is not required. Applicants should have an undergraduate minimum grade point average (GPA) of 3.0 or higher on a 4.0 scale. In addition to academic credentials, test scores, personal achievements, motivation, communication skills (written and oral) and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT) or the Graduate Record Exam (GRE), taken within five years of the starting term, is required of all applicants to the Ph.D. and M.S. Programs. Also, all domestic (including Puerto Rico) and international applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL). A recommended minimum TOEFL score of 106 (New iBT), obtained within two years of the intended starting term, is needed for admission consideration. International applicants who have completed a four-year bachelor's degree in a country where the official language is English may request a waiver of the TOEFL requirement. A master's degree from an English-speaking institution does not qualify for a waiver of the TOEFL. The school accepts IELTS and Pearson Test of English as substitutes for TOEFL.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Graduate students will gather, process and analyze market, linkage and macroeconomic data for the purpose of forecasting real estate trends, communicating the big picture and making prudent investment decisions.
- Graduate students will understand how to optimally source capital to execute on growth and development opportunities, prepare for and manage the crises and contingencies that pervade real estate ventures, and improve efficiencies in the operation of revenue generating properties.
- Graduate students will apply appropriate structures, techniques, and processes to manage or lead a real estate group or enterprise.

### PROFESSIONAL CONDUCT

- Graduate students will be able to recognize, measure, and create value in real estate in the strict respect of all ethical and legal norms and with full awareness of their responsibility to the communities, investors, public policy makers and users they aspire to serve as real estate professionals.

- Graduate students will develop a deeper network with local, regional and international professionals to gather market data, perspectives, investment ideas and employment leads.

## PEOPLE

**Faculty:** Professors Yavas (chair), Malpezzi, Ortalo-Magn'e, Riddiough; Associate Professors Ghent, Quintin; Assistant Professors Diop, Luque

## BUSINESS: REAL ESTATE AND URBAN LAND ECONOMICS, MBA

Wisconsin's two-year MBA program in real estate and urban land economics offers the kind of in-depth real estate graduate education you won't get anywhere else. World class faculty in the classroom, hands-on projects and case studies, international travel, and the unique Applied Real Estate Investment Track (AREIT) program in real estate investment trust management. You'll interact with cutting edge real estate faculty and influential alumni and other leaders in the real estate industry on the Graaskamp Center Board of Advisors. Together, they make up a powerful web that connects and complements your experience in the program and beyond. *U.S. News & World Report* ranks Wisconsin MBA real estate in the top three in the U.S. See the program website (<http://beta.bus.wisc.edu/programs/mba-programs/full-time-mba/career-specializations/real-estate>) for more information.

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW-Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

MBA

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

Minimum Graduate Residence Credit Requirement

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits of prior coursework are allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from a UW-Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNIVERSITY SPECIAL

No credits of prior coursework are allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits<sup>1</sup>

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

- <sup>1</sup> Full-time MBA students may be allowed to enroll in up to 18 credits per term in the 2016–2017 academic year. Contact the Wisconsin School of Business for more information.

## ADMISSIONS

Admission consideration for the MBA program requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. The School of Business seeks a minimum of two years of full-time work experience along with a strong undergraduate performance. In addition to academic credentials, GMAT scores and work experience, personal achievements, motivation, communication skills (written and oral), international exposure and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT), taken within five years of the starting term, is required of all applicants to the School of Business; the Graduate Record Exam (GRE) may be an acceptable alternative on a case by case basis. All applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL), the Pearson Test of English (PTE), Intensive English as a Second Language (IELTS) or show the completion of an Interlink program. A minimum iBT TOEFL score of 100 or equivalent, obtained within two years of the intended start term, is required. International applicants who have completed a degree at an institution whose primary language of instruction was English may request a waiver of this requirement on the application.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Graduate students will gather, process and analyze market, linkage and macroeconomic data for the purpose of forecasting real estate trends, communicating the big picture and making prudent investment decisions.
- Graduate students will understand how to optimally source capital to execute on growth and development opportunities, prepare for and manage the crises and contingencies that pervade real estate ventures, and improve efficiencies in the operation of revenue generating properties.

- Graduate students will apply appropriate structures, techniques, and processes to manage or lead a real estate group or enterprise.

## PROFESSIONAL CONDUCT

- Graduate students will be able to recognize, measure, and create value in real estate in the strict respect of all ethical and legal norms and with full awareness of their responsibility to the communities, investors, public policy makers and users they aspire to serve as real estate professionals.
- Graduate students will develop a deeper network with local, regional and international professionals to gather market data, perspectives, investment ideas and employment leads.

## PEOPLE

**Faculty:** Professors Yavas (chair), Malpezzi, Ortalo-Magn'e, Riddiough; Associate Professors Ghent, Quintin; Assistant Professors Diop, Luque

# REHABILITATION PSYCHOLOGY AND SPECIAL EDUCATION

**Administrative Unit:** Rehabilitation Psychology and Special Education  
**College/School:** School of Education

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S. in Rehabilitation Counselor Education; M.S. in Special Education; Ph.D. in Rehabilitation Psychology; Ph.D. in Special Education

**Minors and Certificates:** Doctoral Minor in Rehabilitation Counselor Education; Doctoral Minor in Special Education

## REHABILITATION PSYCHOLOGY

Rehabilitation psychology is one of the two academic areas in the Department of Rehabilitation Psychology and Special Education. Rehabilitation psychology addresses the needs of older youth, young adults, and adults by preparing rehabilitation counselors at the M.S. level and rehabilitation counselor educators at the Ph.D. level.

## SPECIAL EDUCATION

Special education is one of the two academic areas in the Department of Rehabilitation Psychology and Special Education. Special education addresses the needs of children, youth, and young adults through its teacher education, research and service programs. Rehabilitation psychology addresses the needs of older youth, young adults, and adults by preparing rehabilitation counselors at the M.S. level and rehabilitation counselor educators at the Ph.D. level.

Department faculty in both areas join resources to provide training and research programs that promote successful transition from school to the world of work, postsecondary, education and successful psychosocial adaptation for individuals with disabilities.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Rehabilitation Counselor Education, Doctoral Minor (p. 663)
- Rehabilitation Counselor Education, PhD (p. 663)
- Rehabilitation Psychology, M.S. (p. 666)
- Special Education, Doctoral Minor (p. 667)
- Special Education, M.S. (p. 667)
- Special Education, Ph.D. (p. 670)

## PEOPLE

**Faculty:** Professors Bal, Chan (department chair), Doren (Special Education area chair), Gonzalez, Hanley-Maxwell, Phillips, Rosenthal (Rehabilitation Area Chair), Ruppap, Smedema, Trainor, Tansey, Wilkerson

## REHABILITATION COUNSELOR EDUCATION, DOCTORAL MINOR

The doctoral minor in rehabilitation counselor education offers students the opportunity to bring a rehabilitation counselor education focus to doctoral studies in other departments. The rehabilitation psychology area of the Department of Rehabilitation Psychology and Special Education provides academic instruction in the following areas: disability and human behavior, professional issues and leadership and advocacy in rehabilitation counselor education; assessment and intervention issues in rehabilitation counseling and counselor education. The rehabilitation psychology faculty welcomes students from other disciplines who wish to complete a doctoral minor in rehabilitation counselor education.

## REQUIREMENTS

The doctoral minor in rehabilitation counselor education consists of 9 credits of coursework from the rehabilitation psychology area of the Department of Rehabilitation Psychology and Special Education. These 9 credits must be at the 500 level or above, and chosen in consultation with a faculty advisor.

## ADMISSIONS

The student must request that a faculty member in rehabilitation counselor education serve as the doctoral minor advisor. Coursework must be selected in consultation with the faculty advisor. It is recommended that students meet with a faculty member to plan the minor courses and submit the minor declaration form (<https://uwmadison.box.com/s/xvi0dtta388w8dqsk62pjvdpjap28zu>) during the first year of doctoral study.

Contact information: RPSE Student Services Coordinator, [rpseinfo@education.wisc.edu](mailto:rpseinfo@education.wisc.edu)

## PEOPLE

**Faculty:** Professors Bal, Chan (Department Chair), Doren, Gonzalez, Hanley-Maxwell, Phillips, Rosenthal (Rehabilitation Area Chair), Ruppap, Smedema, Trainor, Tansey, Wilkerson

## REHABILITATION COUNSELOR EDUCATION, PHD

The Ph.D. program in rehabilitation psychology prepares rehabilitation counselor educators to serve as university professors in rehabilitation counseling and closely related academic programs. The program is a leader in preparing Ph.D. professionals who go on to serve in teaching, research, and program administration at universities throughout the U.S. and internationally, as evidenced by leadership positions within the profession and the research and scholarly contributions of program faculty and graduates. Faculty members work closely with graduate students on research projects including the PROMISE grant, the RRTC (Rehabilitation Research and Training Centers) grant, and research measuring the impact of evidence-based practices. In addition, faculty routinely involve students in a full array of professional activities. These

may include reviewing papers for journals, preparing materials for litigation involving civil rights violations of persons with disabilities, preparing research and training grant applications, preparing training materials, and involvement in clinical cases.

Further evidence of the quality and recognition of the graduate program in rehabilitation psychology at the University of Wisconsin–Madison is provided by the current No. 1 ranking of the program by *U.S. News & World Report* among all graduate programs in rehabilitation counseling nationwide.

The M.S. and Ph.D. programs serve students from across the nation and around the world. Financial support is available to qualified graduate students and may include scholarships, traineeships, teaching assistantships, and research/project assistantships. Employment opportunities following graduation include public and private educational, rehabilitation, and mental health agencies; colleges and universities; and research settings.

## FUNDING

Prospective students should see the program website (<http://rpse.education.wisc.edu/rpse/programs/funding-and-financial-aid>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

60 credits beyond the Master's degree

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits beyond the Master's degree

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

30 credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students are allowed to count graduate coursework from other institutions. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits taken as an undergraduate are allowed to count toward the post-master's credits for the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison University Special student toward the minimum graduate degree credit requirement; those courses numbered 700 level or above taken as a UW–Madison University Special student may count toward the minimum graduate coursework (50%) requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Meet requirements of master's-level content in basic psychology, statistics and research design, rehabilitation psychology core, assessment, intervention, disability and human Behavior, and supervised experience.

60 post-master's graduate degree credits to include:

Code	Title	Credits
<b>Foundations</b>		
ED PSYCH 711	Current Topics in Educational Psychology	1-3
COUN PSY/RP & SE/ PSYCH 729	Advanced Social Psychology	3
ED PSYCH/COUN PSY/RP & SE 735	Legal and Ethical Bases of Counseling and Psychology	3
RP & SE/COUN PSY/ ED PSYCH 736	Seminar in Psychology of Individual Differences	3
ED PSYCH 795	Introduction to Learning Sciences I	3
ED PSYCH/COUN PSY 737	Seminar in History and Systems of Psychology	3
<b>Measurement, Statistics and Research Design</b>		
ED PSYCH 760	Statistical Methods Applied to Education I	3
ED PSYCH 761	Statistical Methods Applied to Education II	3
ED PSYCH 771	Test Construction	3
RP & SE 985	Individuals with Disabilities: Advanced Research Methodologies	3
Additional coursework selected in consultation with Major Professor and approved by faculty		
<b>Rehabilitation Psychology Core</b>		
RP & SE 870	Seminar: Assessment in Rehabilitation Psychology	3
RP & SE 903	Psychosocial Theory and Research in Rehabilitation Psychology	3-6
RP & SE 980	Adult Cognitive Assessment	3
RP & SE 983	Seminar: Professional Issues in Rehabilitation Psychology	3-6



RP & SE 984	Seminar: Principles of Behavior Change in Rehabilitation Psychology	3-6
<b>Practicum</b>		
RP & SE 900	Rehabilitation Counseling Psychology-Supervised Practicum III	2-3
RP & SE 920	Rehabilitation Counseling Psychology-Counseling Supervision	3
RP & SE 930	Rehabilitation Counseling Psychology-Practice Teaching	1-3
RP & SE 940	Rehabilitation Counseling Psychology-Supervised Research	1-3
<b>Minor</b>		
Select 10-12 credits		10-12
<b>Internship</b>		
Complete an internship		
<b>Dissertation</b>		
RP & SE 990	Research or Thesis	1-3

## DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students must complete a doctoral minor of 10–12 credits.

## OVERALL GRADUATE GPA REQUIREMENT

3.0

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Students are assigned a faculty mentor upon admission to the program and a permanent faculty advisor at the end of the first semester of graduate study.

## ASSESSMENTS AND EXAMINATIONS

Formal admission to doctoral study  
Preliminary examinations  
Dissertation final oral committee examination

## TIME CONSTRAINTS

A doctoral degree requires 32 graduate credits (300 level or above, no audits or pass/fail) taken as a graduate student at UW–Madison.

Doctoral students have five years from the date of passing the preliminary examination to take the final oral examination and deposit the dissertation. In some departments, if the professor(s) in charge

is satisfied with the preparation, the preliminary examination may be construed as the final examination.

A candidate for a doctoral degree who fails to take the final oral examination within five years after passing the preliminary examination is required to take another preliminary examination and be admitted to

Rehabilitation psychology minimum degree requirements and satisfactory progress chart March 2014 candidacy a second time.

Deposit of the doctoral dissertation in the Graduate School is required.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Complete application information is available on the program website (<http://rpse.education.wisc.edu/rpse/programs/graduate-degree-programs/rehabilitation-psychology-graduate-program/application-admission-m-s-m-a->). Applicants are expected to meet general requirements for admission to the Graduate School. The following factors will be considered by the admissions committee: relevancy of prior undergraduate and graduate study, employment history, stated goals for graduate study, evidence of writing and research skill, and three references. In addition, rehabilitation psychology doctoral candidates are required to submit scores on the Graduate Record Exam (GRE).

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

### RESEARCH SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field.
- Creates research, scholarship, or performance that makes a substantive contribution to the field.
- Communicates complex ideas in a clear and understandable manner.

### TEACHING/ADVISING SKILLS

- Demonstrates breadth within their learning experiences in the doctoral program in rehabilitation psychology.
- Shares knowledge and research in the field with students in a clear and engaging manner; effectively communicates with students within and outside of class; advances contributions of the field to society.

### PROFESSIONAL SERVICE

- Participates in public and professional service.

## PROFESSIONAL CONDUCT

- Serve as a model of ethical and professional conduct. Promote the ethical and professional conduct of researchers, educators, and practitioners of rehabilitation psychology and rehabilitation counseling.

## PEOPLE

**Faculty:** Professors Bal, Chan (Department Chair), Doren, Gonzalez, Hanley-Maxwell, Phillips, Rosenthal (Rehabilitation Area Chair), Ruppap, Smedema, Trainor, Tansey, Wilkerson

## REHABILITATION PSYCHOLOGY, M.S.

The M.S. degree program in rehabilitation psychology prepares rehabilitation counselors and closely related professionals at the master's degree level to serve adolescents and adults with disabilities in both private and public rehabilitation agencies and programs through counseling, assessment, job placement, case management, and advocacy. The range of disabilities served by graduates includes physical and psychiatric disabilities, alcohol and drug abuse, traumatic brain injury and other neurological impairments, learning and intellectual disabilities, sensory disabilities, and aging. The M.S. program is accredited by the Council on Rehabilitation Education (CORE) as a rehabilitation counseling program. Graduates meet the educational qualifications for the national Certified Rehabilitation Counselor (CRC) credential.

Program requirements are designed to accommodate Wisconsin licensure requirements for professional counselors (LPC) and to meet accreditation standards of the Council on Rehabilitation Education (CORE). The program is also designed to anticipate continued accreditation under the merged accreditation process of CORE and the Council on Accreditation of Counseling and Related Educational Programs (CACREP). Visit the program website (<http://rpse.education.wisc.edu/rpse/programs/graduate-degree-programs/rehabilitation-psychology-graduate-program>) for updates.

Further evidence of the quality and recognition of the graduate program in rehabilitation psychology at the University of Wisconsin–Madison is provided by the current No. 1 ranking of the program by *U.S. News & World Report* among all graduate programs in rehabilitation counseling nationwide.

The M.S. and Ph.D. programs serve students from across the nation and around the world. Financial support is available to qualified graduate students and may include scholarships, traineeships, teaching assistantships, and research/project assistantships. Employment opportunities following graduation include public and private educational, rehabilitation, and mental health agencies; colleges and universities; and research settings.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

48 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

24 credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students are allowed to count graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, students are allowed to count 7 credits of coursework numbered 300 level or above from a UW–Madison undergraduate degree toward the graduate degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

48 graduate degree credits to include:

Required Core Academic Coursework: rehabilitation psychology

Required Core Academic Coursework: other departments

Required Clinical Instruction: rehabilitation psychology

### OVERALL GRADUATE GPA REQUIREMENT

3.0

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300

or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Students are assigned a faculty mentor upon admission to the program and a permanent faculty advisor at the end of the first semester of graduate study.

## ASSESSMENTS AND EXAMINATIONS

Master's comprehensive exam successful completion of the Certified Rehabilitation Counselor (CRC) national certification exam or a traditional written comprehensive exam.

## TIME CONSTRAINTS

Master's degree students who are absent for five or more years will not be given credit for prior work.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Complete application information is available on the program website (<http://rpse.education.wisc.edu/rpse/programs/graduate-degree-programs/rehabilitation-psychology-graduate-program/application-admission-m-s-m-a->). Applicants are expected to meet general requirements for admission to the Graduate School. The following factors will be considered by the admissions committee: relevancy of prior undergraduate and graduate study, employment history, stated goals for graduate study, evidence of writing and research skill, and three references. In addition, rehabilitation psychology doctoral candidates are required to submit scores on the Graduate Record Exam (GRE).

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Students will demonstrate mastery of the knowledge domains of the rehabilitation counseling profession including understanding the theoretical and historical foundations of the field of rehabilitation counseling and the ability to identify current best practices and challenges in the field. Specific knowledge domains are outlined by the rehabilitation counseling professional accrediting body, CORE (the Council on Rehabilitation Education).
- Students will successfully apply the knowledge gained through course work to practical experiences in community rehabilitation settings.
- Students will be prepared to enter professional positions in fields related to rehabilitation counseling including vocational rehabilitation, mental health counseling, advocacy, and support of individuals with disabilities

## PROFESSIONAL CONDUCT

- Students will be able to recognize and apply principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Bal, Chan (Department Chair), Doren, Gonzalez, Hanley-Maxwell, Phillips, Rosenthal (Rehabilitation Area Chair), Ruppap, Smedema, Trainor, Tansey, Wilkerson

## SPECIAL EDUCATION, DOCTORAL MINOR

The doctoral minor in special education offers students the opportunity to bring a special education focus to doctoral studies in other departments. Special education faculty members prepare students to bring systemic change to educational and community settings in ways that improve access and equity for children and youth with disabilities and their families. Coursework addresses pressing issues in the field including increasing equity across diverse groups of students, improving post-school outcomes for individuals with disabilities, and enhancing teacher efficacy in secondary education methodologies with students with disabilities.

## REQUIREMENTS

The doctoral minor in special education consists of 9 credits to include:

1. RP & SE 871 Foundations of Special Education (usually offered in fall semesters)
2. Additional course work in the special education area of the RPSE department to reach a minimum of 9 credits, to be chosen in consultation with a faculty advisor.

## ADMISSIONS

The student must request that a special education area faculty member serve as the doctoral minor advisor. Coursework must be selected in consultation with the faculty advisor. The minor declaration form (<https://uwmadison.box.com/s/pozw6mppbcmcp45dcn08bs47efq63pq2>) must be completed and submitted to the student services coordinator in the RPSE department.

Contact information: RPSE student services coordinator, [rpseinfo@education.wisc.edu](mailto:rpseinfo@education.wisc.edu).

## SPECIAL EDUCATION, M.S.

The M.S. degree program in special education offers two master's tracks including a teacher certification track and a general track. The teacher certification and general master's tracks prepare students to serve as resources and advocates for students with disabilities and their families, and to work cooperatively with schools and community agencies to improve the quality of life for students with disabilities. Graduates of the master's program who are also certified to teach are eligible to apply for two Wisconsin Cross-Categorical Special Education licenses (Middle Childhood through Early Adolescence, ages 6–12/13, and Early Adolescence through Adolescence, ages 10–21).

Special education is one of the two academic areas in the Department of Rehabilitation Psychology and Special Education. The areas are joined

by a common mission of preparing professional leadership personnel to address the educational and rehabilitation needs of individuals with disabilities across the life span. Both special education and rehabilitation psychology offer programs leading to Ph.D., M.S., and B.S. degrees. Special education addresses the needs of children, youth, and young adults through its teacher education, research and service programs. Rehabilitation psychology addresses the needs of older youth, young adults, and adults by preparing rehabilitation counselors at the M.S. level and rehabilitation counselor educators at the Ph.D. level. Department faculty in both areas join resources to provide training and research programs that promote successful transition from school to the world of work, postsecondary, education and successful psychosocial adaptation for individuals with disabilities.

Faculty research interests focus, on research methods, reading, adolescence, transition, vocational education, and diversity and equity issues in the field of special education. The department is a national and international leader in preparing Ph.D. professionals to serve in leadership positions in university teaching, research, and program administration. This leadership is evidenced by the publication and research record of its faculty and graduates, and by the routine placement of Ph.D. graduates in major universities and colleges. The program develops researchers and leaders who contribute to creating, integrating and disseminating new knowledge related to the education of individuals with disabilities.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S., with available general, and teacher certification tracks

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

M.S. general track: 30 credits

M.S. teacher certification track: 30 credits (this track incorporates a professional program; average number of credits taken by students exceeds 30 credits).

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

M.S. general track:

15 credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

M.S. teacher certification track:

36 credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the

university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students are allowed to count graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students are allowed to count 7 credits of coursework numbered 300 level or above from a UW-Madison undergraduate degree toward the graduate degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

M.S. general track: 30 graduate degree credits to include:

- RP & SE 700 Seminar: Rehabilitation Psychology Research
- Additional coursework to be determined in consultation with faculty advisor
- Master's comprehensive exam
- Project and/or thesis (to be determined in consultation with faculty advisor)

M.S. teacher certification track: 30 graduate credits to include:

- Completion of the four-semester full time, sequenced Special Education teacher certification program (see attached).
- RP & SE 700 Seminar: Rehabilitation Psychology Research
- Completion of additional program related coursework before student teaching (may be met through prior coursework): RP & SE 300 Individuals with Disabilities, ED PSYCH 331 Human Development From Childhood Through Adolescence, or ED PSYCH 320 Human Development in Infancy and Childhood and ED PSYCH 321 Human Development in Adolescence, ED PSYCH 301 How People Learn, ED POL 300 School and Society, ED POL/HISTORY 412 History of American Education, or ED POL 500 Topics on Social Issues and Education
- Master's comprehensive exam (usually taken as RP & SE 690 Research or Thesis)
- Project and/or thesis (to be determined in consultation with faculty advisor)

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

Students are assigned a faculty mentor upon admission to the program.

## ASSESSMENTS AND EXAMINATIONS

Master's comprehensive exam  
Project and/or thesis

## TIME CONSTRAINTS

Master's degree students who are absent for five or more years will not be given credit for prior work.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Application information is available on the department website (<http://rpse.education.wisc.edu/rpse/programs/graduate-degree-programs/special-education-graduate-programs/application-requirements-and-deadlines>). Applicants are expected to meet general requirements for admission to the Graduate School. The admissions committee considers a variety of factors including academic preparation, letters of recommendation, personal statement, and professional experiences.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- General Master's Program: Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
- Master's with Teacher Certification Program—Special Education Advocacy and Leadership: Students will be prepared to advocate for and provide leadership in the education of students with a wide array of learning, cognitive, social/emotional and behavioral disabilities in accordance with the standards established by the Council for Exceptional Children.
- General Master's Program: Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
- Master's with Teacher Certification Program—Learner & Learning Environment: Students will use knowledge of learners and human development to create responsive, inclusive, and respectful learning activities and environments that maximize learners' cognitive, linguistic, social, emotional, and physical development. Students will

apply this knowledge to special education practices as outlined in the student teaching handbook.

- General Master's Program: Demonstrates understanding of the primary field of study in a historical, social, or global context.
- Master's with Teacher Certification—Learner & Learning Environment: Students will use knowledge of learners and human development to create responsive, inclusive, and respectful learning activities and environments that maximize learners' cognitive, linguistic, social, emotional, and physical development. Students will apply this knowledge to special education practices as outlined in the student teaching handbook.
- General Master's Program: Selects and/or utilizes the most appropriate methodologies and practices.
- Master's with Teacher Certification Program—Plan: Students will use knowledge of learners, contexts, disciplines, pedagogies and standards to plan and adjust developmentally appropriate and challenging learning activities and assessments. Students will apply planning knowledge and skills to special education practices as outlined in the student teaching handbook.
- General Master's Program: Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Master's with Teacher Certification Program—Engage and Instruct: Students will use knowledge of learners, contexts, disciplines, pedagogies and standards to implement planned and unplanned developmentally appropriate, challenging, and learner-responsive learning activities and maintain safe, inclusive, and respectful learning environments.
- General Master's Program: Communicates clearly in ways appropriate to the field of study.
- Master's with Teacher Certification Program—Assess: Students will create and implement meaningful assessments and use assessment results to inform instruction, communicate with parents and others, and provide feedback to learners to guide their future performance and learning. Students will use research to implement evidence-based practices in the field of special education. Students will apply assessment knowledge and skills to special education practices as outlined in the student teaching handbook.

## PROFESSIONAL CONDUCT

- General Master's Program: Students recognize and apply principles of ethical and professional conduct.
- Master's with Teacher Certification—Professionalism and Ethics: Students will exhibit professionalism and adhere to ethical practices as they continue their own development and collaborate with others to improve their profession, school communities, and outcomes for students and families. Students will apply principles of professionalism and ethics to special education contexts as outlined in the practices as outlined in the student teaching handbook.

## PEOPLE

**Faculty:** Professors Bal, Chan (department chair), Doren (Special Education area chair), Gonzalez, Hanley-Maxwell, Phillips, Rosenthal, Ruppard, Smedema, Trainor, Tansey, Wilkerson

## SPECIAL EDUCATION, PH.D.

The Ph.D. degree is a research-based program preparing leaders in the field of special education to bring systemic change to educational and community settings in ways that improve access and equity for children and youth with disabilities and their families. The program provides research, teaching and service experiences that prepare graduates to address issues in the field including:

- Improving teacher preparation in special education
- Increasing equity across increasingly diverse groups of students
- Improving post-school outcomes for individuals with disabilities
- Enhancing teacher efficacy in secondary education methodologies with students with disabilities

Special education is one of the two academic areas in the Department of Rehabilitation Psychology and Special Education. The areas are joined by a common mission of preparing professional leadership personnel to address the educational and rehabilitation needs of individuals with disabilities across the life span. Both special education and rehabilitation psychology offer programs leading to Ph.D., M.S., and B.S. degrees. Special education addresses the needs of children, youth, and young adults through its teacher education, research and service programs. Rehabilitation psychology addresses the needs of older youth, young adults, and adults by preparing rehabilitation counselors at the M.S. level and rehabilitation counselor educators at the Ph.D. level. Department faculty in both areas join resources to provide training and research programs that promote successful transition from school to the world of work, postsecondary, education and successful psychosocial adaptation for individuals with disabilities.

Faculty research interests focus, on research methods, reading, adolescence, transition, vocational education, and diversity and equity issues in the field of special education. The department is a national and international leader in preparing Ph.D. professionals to serve in leadership positions in university teaching, research, and program administration. This leadership is evidenced by the publication and research record of its faculty and graduates, and by the routine placement of Ph.D. graduates in major universities and colleges. The program develops researchers and leaders who contribute to creating, integrating and disseminating new knowledge related to the education of individuals with disabilities.

## FUNDING

Financial support, although limited, is available to qualified graduate students and may include scholarships, traineeships, teaching assistantships, and research/project assistantships. Prospective students should see the program website (<http://rpse.education.wisc.edu/rpse/programs/funding-and-financial-aid>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

56 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

28 credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Students are allowed to count graduate coursework from other institutions. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits taken as an undergraduate are allowed to count toward the post-master's credits for the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison University Special student toward the minimum graduate degree credit requirement; those courses numbered 700 level or above taken as a UW–Madison University Special student may count toward the minimum graduate coursework (50%) requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

- 20 credits of seminar to include: RP & SE 871 Foundations of Special Education, RP & SE 872 Seminar in Special Education Research, RP & SE 873 Professional Development for Future Special Education Researchers and Faculty in Higher Education, RP & SE 710 Multicultural Issues in Special Education and additional credits to reach 20 with courses identified in consultation with faculty advisor.

(Choice courses are listed as RP & SE 660s, or special topics, and include issues in teacher education and diversity—focused and adolescence—focused courses).

- 6 credits Internships to include RP & SE 930 Rehabilitation Counseling Psychology-Practice Teaching and RP & SE 941 Internship: Research
- 9 credits academic minor to be chosen in consultation with faculty advisor.
- 15 credits of research design and statistics to include: ED PSYCH 760 Statistical Methods Applied to Education I, ED PSYCH 761 Statistical Methods Applied to Education II, CURRIC/COUN PSY/ED POL/ED PSYCH/ELPA/RP & SE 719 Introduction to Qualitative Research, and other research/statistics courses chosen in consultation with faculty advisor
- 6 credits RP & SE 990 Research or Thesis (dissertation)
- Exams (not directly linked to coursework to include qualifying, preliminary, and dissertation

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for one additional semester based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

When a student is first admitted to the doctoral program a faculty member in the special education area will assume major advisor responsibilities on a temporary basis. In many instances, the doctoral student—major advisor relationship established at the time of admission will extend throughout the doctoral program. However, both the student and the major advisor have the prerogative to change the relationship should personal, academic, or other considerations make it necessary. If a change is desired, the matter should be discussed first by the major advisor and the student. If the student and/or the major advisor can arrange for another faculty member to assume major advisor responsibilities, the name of the new major advisor should be submitted in writing to the SEGSC. If the student and/or the major advisor cannot arrange for a new major advisor, a written request for one should be submitted to the SEGSC. The SEGSC will take reasonable actions designed to assist the student to arrange for a new major advisor.

## ASSESSMENTS AND EXAMINATIONS

Formal admission to doctoral study

Preliminary examination: Doctoral students are required to take a comprehensive preliminary examination after they have cleared their

record of all Incomplete and Progress grades (other than research and thesis).

Dissertation Final Oral Committee Examination

## TIME CONSTRAINTS

Doctoral students have five years from the date of passing the preliminary examination to take the final oral examination and deposit the dissertation. In some departments, if the professor(s) in charge is satisfied with the preparation, the preliminary examination may be construed as the final examination.

A candidate for a doctoral degree who fails to take the final oral examination within five years after passing the preliminary examination is required to take another preliminary examination and be admitted to candidacy a second time.

Deposit of the doctoral dissertation in the Graduate School is required.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Application information is available on the department website (<http://rpse.education.wisc.edu/rpse/programs/graduate-degree-programs/special-education-graduate-programs/application-requirements-and-deadlines>). Applicants are expected to meet general requirements for admission to the Graduate School. The admissions committee considers a variety of factors including academic preparation, letters of recommendation, personal statement, and professional experiences.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- **Conceptual Knowledge:** Formulates ideas, concepts, designs, and/or techniques within and beyond the current boundaries of knowledge, or practice within the field of study; demonstrates breadth within their learning experiences.
- **Research Skills:** Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study; creates research, scholarship, or performance that makes a substantive contribution.
- **Teaching/Advising Skills:** Shares knowledge and research in the field with students in a clear and engaging manner; effectively communicates with students within and outside of class; advances contributions of the field of study to society.
- **Communication and Leadership Skills:** Communicates complex ideas in a clear and understandable manner to a variety of audiences.
- **Service:** Participates in public and professional service.

### PROFESSIONAL CONDUCT

- **Professionalism/Ethics:** Demonstrates the ability to work well with others, participates in professional organizations, adheres to ethical standards of research protocol and professional behavior.

## PEOPLE

**Faculty:** Professors Bal, Chan (department chair), Doren (Special Education area chair), Gonzalez, Hanley-Maxwell, Phillips, Rosenthal, Ruppap, Smedema, Trainor, Tansey, Wilkerson



# RELIGIOUS STUDIES

**Administrative Unit:** Religious Studies

**College/School:** College of Letters & Science

**Minors and Certificates:** Doctoral Minor

Religious studies has emerged as one of the most significant interdisciplinary programs on campus. It includes faculty from more than twenty departments and offers dozens of courses covering all of the world's major and many of its minor religious traditions. Chronologically, the program's offerings range from ancient to modern times; geographically, they span the globe; and methodologically, they range across the humanities and social studies, with special attention to the theories and methods which have developed in the field of religious studies itself. The program does not offer a graduate degree, but the religious studies program does award a minor to students enrolled for the Ph.D. in other departments. In exceptional circumstances, students admitted to a doctoral degree-granting department may be granted permission to pursue a special committee doctorate in religious studies; for information on such degrees, contact the Graduate School.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Religious Studies, Doctoral Minor (p. 673)

## PEOPLE

**Faculty:** See current faculty listing on program website (<http://religiousstudies.lss.wisc.edu/?q=node/8>).

## RELIGIOUS STUDIES, DOCTORAL MINOR

### REQUIREMENTS

Students interested in a doctoral minor in religious studies select an advisor from faculty in their field of interest. Minors are expected to achieve a grade of B or better in four religious studies program courses totaling at least ten credits at the 300 level or above. One of these four courses must deal with approaches to religion; RELIG ST 600 Religion in Critical Perspective or an equivalent is strongly recommended. Students must register for crosslisted courses from within religious studies rather than from within any crosslisting department. The doctoral minor planning form and certification form, along with a list of courses satisfying the approaches requirement, are available in the program office and website.

## PEOPLE

**Faculty:** See current faculty listing on program website (<http://religiousstudies.lss.wisc.edu/?q=node/8>).

# RISK AND INSURANCE

**Administrative Unit:** Risk and Insurance

**College/School:** School of Business

**Admitting Plans:** MBA

**Degrees Offered:** MBA, M.S.

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE PROFESSIONAL/CERTIFICATES

- Business: Risk Management and Insurance, M.S. (p. 674)
- Business: Risk Management and Insurance, MBA (p. 675)

## PEOPLE

**Faculty:** Professors Schmit (chair), Frees, Rosenberg; Associate Professor Leverty; Assistant Professors Mukherjee, Shi, Sydnor

## BUSINESS: RISK MANAGEMENT AND INSURANCE, M.S.

The M.S. degree in the School of Business is currently designed for students who wish to pursue very specialized studies within one of two specific fields: global real estate (in the Business: Real Estate and Urban Land Economics M.S.) and finance (within the Business: Finance, Investment and Banking M.S.). With previous undergraduate exposure to the functional areas of business, students are able to gain a more extensive focus in one of these two specific areas of business.

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the

School of Business faculty bring a variety of real-world experience to the program.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval and payment of the difference in tuition (between special and graduate tuition), students are allowed to count no more than 9 credits of coursework numbered 700 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to the master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a

graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

## TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Admission consideration requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. Work experience is not required. Applicants should have an undergraduate minimum grade point average (GPA) of 3.0 or higher on a 4.0 scale. In addition to academic credentials, test scores, personal achievements, motivation, communication skills (written and oral) and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT) or the Graduate Record Exam (GRE), taken within five years of the starting term, is required of all applicants to the Ph.D. and M.S. Programs. Also, all domestic (including Puerto Rico) and international applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL). A recommended minimum TOEFL score of 106 (New iBT), obtained within two years of the intended starting term, is needed for admission consideration. International applicants who have completed a four-year bachelor's degree in a country where the official language is English may request a waiver of the TOEFL requirement. A master's degree from an English-speaking institution

does not qualify for a waiver of the TOEFL. The school accepts IELTS and Pearson Test of English as substitutes for TOEFL.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Integrate a holistic risk management process (framework) across all dimensions of an organization, implementing RM decisions that add value.
- Apply fundamental insurance principles that support economic development through insurance markets.
- Use appropriate qualitative and quantitative analysis, including statistical and data techniques, to support risk management decisions.
- Demonstrate strong critical thinking skills as observed through their ability to debate various positions, ask skeptical questions, and probe underlying assumptions.
- Set objectives, define success, establish priorities, and implement strategies to achieve goals.
- Identify decision-making challenges, and implement strategies to address those challenges, in environments involving risk and uncertainty.

### PROFESSIONAL CONDUCT

- Incorporate diverse perspectives, value opinions of others, and work collegially.
- Communicate effectively across diverse social and professional settings.

### ADDITIONAL LEARNING GOALS

- Demonstrate leadership qualities in moving the profession forward.
- Build and develop teams and lead effectively at individual, group, and organizational level.
- Communicate effectively on paper, in conversation, and by presentation.
- Summarize complex problems, present results succinctly, and with logical flow, respond effectively to critical and skeptical questions, and listen to critiques.

## PEOPLE

**Faculty:** Professors Schmit (chair), Frees, Rosenberg; Associate Professor Leverty; Assistant Professors Mukherjee, Shi, Sydnor

## BUSINESS: RISK MANAGEMENT AND INSURANCE, MBA

The risk management and insurance program has a long tradition of innovation and excellence, opening its doors more than 70 years ago, and consistently ranks in the top handful of programs in the country. Students who graduate from our risk management and insurance program do so with exceptionally strong critical thinking and analytical skills, aided by a vast array of experiences interacting with business professionals in risk management consulting, finance, and operations. The School of Business' Risk Management and Insurance program has consistently

ranked among the best in the nation, recently earning a ranking of #2 in the United States by U.S. News and World Report. See the program website (<http://beta.bus.wisc.edu/programs/mba-programs/full-time-mba/career-specializations/risk-management-insurance>) for more information.

Graduates of the School of Business possess highly sought-after technical and specialized expertise in a functional area of business as well as general leadership, problem-solving, analytical, and decision-making skills. Utilizing these skills, many of the school's 30,000 alumni have achieved remarkable success in business, government, service, and academic arenas worldwide.

The high scholarly productivity and leadership of the school's 84 faculty are regularly noted in national rankings. Recent studies of U.S. and worldwide scholarly research productivity rated UW–Madison School of Business faculty among the top graduate business schools in the country. In addition to world-renowned recognition for research, the School of Business faculty bring a variety of real-world experience to the program.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

MBA

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework (15 credits out of 30 total credits) must be completed in: courses numbered 700 or higher.

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

No credits of prior coursework are allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

No credits of prior coursework are allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits<sup>1</sup>

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

### ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.

### ASSESSMENT AND EXAMINATIONS

Contact the program for information on required assessments and examinations.

### TIME CONSTRAINTS

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

### LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

<sup>1</sup> Full-time MBA students may be allowed to enroll in up to 18 credits per term in the 2016–2017 academic year. Contact the Wisconsin School of Business for more information.

## ADMISSIONS

Admission consideration for the MBA program requires a four-year undergraduate degree or the equivalent, in any discipline, from an accredited institution. The School of Business seeks a minimum of two years of full-time work experience along with a strong undergraduate performance. In addition to academic credentials, GMAT scores, and work experience, personal achievements, motivation, communication skills (written and oral), international exposure, and recommendation letters are considered in the admission process at both the master's and doctoral levels.

*Note:* The Graduate Management Admission Test (GMAT), taken within five years of the starting term, is required of all applicants to the School of Business; the Graduate Record Exam (GRE) may be an acceptable alternative on a case by case basis. All applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL), the Pearson Test of English (PTE), Intensive English as a Second Language (IELTS), or show the completion of an Interlink program. A minimum iBT TOEFL score of 100 or equivalent, obtained within two years of the intended start term, is required. International applicants who have completed a degree at an institution whose primary language of instruction was English may request a waiver of this requirement on the application.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Integrate a holistic risk management process (framework) across all dimensions of an organization, implementing RM decisions that add value.
- Apply fundamental insurance principles that support economic development through insurance markets.
- Use appropriate qualitative and quantitative analysis, including statistical and data techniques, to support risk management decisions.
- Demonstrate strong critical thinking skills as observed through their ability to debate various positions, ask skeptical questions, and probe underlying assumptions.
- Set objectives, define success, establish priorities, and implement strategies to achieve goals.
- Identify decision-making challenges, and implement strategies to address those challenges, in environments involving risk and uncertainty.

### PROFESSIONAL CONDUCT

- Incorporate diverse perspectives, value opinions of others, and work collegially.
- Communicate effectively across diverse social and professional settings.

### ADDITIONAL LEARNING GOALS

- Demonstrate leadership qualities in moving the profession forward.
- Build and develop teams and lead effectively at individual, group, and organizational level.
- Communicate effectively on paper, in conversation, and by presentation.

- Summarize complex problems, present results succinctly, and with logical flow, respond effectively to critical and skeptical questions, and listen to critiques.

## PEOPLE

**Faculty:** Professors Schmit (chair), Frees, Rosenberg; Associate Professor Leverty; Assistant Professors Mukherjee, Shi, Sydnor

# SOCIAL WORK

**Administrative Unit:** Social Work

**College/School:** College of Letters & Science

**Admitting Plans:** MSW, Ph.D.

**Degrees Offered:** MSW in Social Work; Ph.D. in Social Welfare

**Minors and Certificates:** Doctoral Minor in Social Welfare

**Named Options:** Part Time MSW, Eau Claire (MSW); Part Time MSW, Madison (MSW)

The School of Social Work at UW–Madison is consistently ranked among the best schools of social work in the country. Faculty prepare social work professionals at the bachelor's, master's, and doctoral levels. Through the preparation of social work practitioners, scholars and educators, faculty and students explore and seek to understand the nature of social problems, their impact on vulnerable populations, and ways to critically analyze and promote the achievement of a just, equitable, healthy, and productive society.

Social work faculty are noted for their scholarly work in developing a conceptual understanding of social work practice and policy, and in producing research in important social problem areas. For example, faculty took a leadership role in the development of the generalist model of practice now used by most social work programs. Faculty members have made valuable research contributions in the fields of aging, child welfare, developmental disabilities, and family and intergenerational caregiving, as well as in educational attainment and life-course decision-making, end-of-life care for older adults and palliative care, health disparities, homelessness, poverty, social policy, welfare reform, and child support. Drawing on strong faculty, excellent students, and the resources of a world-renowned university in a community rich with social and human service programs, there is much to offer prospective students: individualized, faculty-taught field education for master's students, nationally renowned faculty with a strong interdisciplinary focus, and hands-on research training in a highly individualized program of study for doctoral students.

The school offers unique opportunities for students to receive state-of-the-art professional training through its field education program. Student practice opportunities range from experiences in institutional and community-based settings to working with families and other significant care-givers, with individuals and groups, and in policy and service delivery issues.

**Mission.** The mission of the School of Social Work is to enhance human well-being and promote social and economic justice for people who are disadvantaged to achieve an equitable, healthy, and productive society. The school aims to:

- Create, advance, strengthen, and integrate interdisciplinary knowledge for students and the profession through research, scholarship, and practice.
- Educate students to become highly skilled, culturally competent and ethical practitioners who will provide leadership for the profession of social work within the state of Wisconsin and nationally.
- Promote change at levels ranging from the individual client to national, including empowering communities and populations that are disadvantaged and developing humane service delivery systems.
- Create and disseminate knowledge regarding the prevention and amelioration of social problems.

The School of Social Work is one of five professional schools in the College of Letters and Science. As part of the college, the school maintains relationships with the other social studies and professional schools within the university system through interchange of faculty and students and through joint research and publication endeavors.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Social Welfare, Doctoral Minor (p. 678)
- Social Welfare, Ph.D. (p. 678)
- Social Work, MSW (p. 680)

## PEOPLE

**Faculty:** Professors Robert (director), Berger, Brower, Cancian, Greenberg, Kramer, Magnuson, Mailick, Meyer, Shook Slack; Associate Professors Curtis, Haley-Lock, Moses, Schroeffer; Assistant Professors Bishop-Fitzpatrick (2017), Glass, Ros Pilarz, Walsh, Xiong. A complete list of all faculty and staff in the school is available here (<https://socwork.wisc.edu/facstaff-all>).

## SOCIAL WELFARE, DOCTORAL MINOR

### REQUIREMENTS

Doctoral students outside the school are invited to consider the minor in social welfare. The 9-credit minor requires three doctoral-level courses from the School of Social Work. One must be a Social Policy Seminar (SOC WORK 950 PhD Proseminar), one must be an Applied Theory Seminar (SOC WORK 951 PhD Proseminar), and the third can be a 3-credit social work doctoral course of the student's choosing (which could be another SOC WORK 950 PhD Proseminar or SOC WORK 951 PhD Proseminar seminar).

## SOCIAL WELFARE, PH.D.

### PH.D. DEGREE TRACKS

Students who enter the Ph.D. program with a master's degree in social work and follow the program's standard course sequencing should be able to complete their degree in four to five years. Students who enter the program without a master's degree must plan on an additional one to two years to complete the program and must select from among the following:

- *Track I:* Joint Ph.D./MSW program for students without a bachelor's degree in social work (students complete the equivalent of the two-year master's program while in the doctoral program)
- *Track II:* Joint Ph.D./MSW program for students with a bachelor's degree in social work (students complete the equivalent of the one-year master's program advanced generalist specialization in an area of focus; requires that students have a BSW from a CSWE accredited school of social work)

- *Track III:* Program for students who do not have a social work degree and who do not want an MSW (requires that students complete MSW generalist foundation courses and a 2-credit internship)

The doctoral program has four special features: an emphasis is given to interdisciplinary research and training that seeks to promote optimal functioning in individuals or families across the life course; it stresses that social welfare problems are best understood in individual, family, community, economic, and cultural context; it conceptualizes research as a catalyst for social action and change; and it emphasizes methodological and statistical training and their applications to studying social problems and processes.

The first two years of the curriculum emphasize methodological, statistical, theoretical and substantive coursework. A variety of social welfare seminars are offered within the school. Students from several departments are invited to join these seminars creating a rich interdisciplinary training environment. Two foundation social welfare research methods seminars cover the fundamentals of research design and implementation relevant to the design and conduct of quantitative, qualitative, and mixed methods research. Application of research methods seminars provide practical experience and application of research knowledge and skills (e.g., proposal writing and data analysis). The social policy and applied theory seminars address specific substantive issues (e.g., poverty, child welfare, family policy), as well as core policy analytics and models of the application of social theory to social problems, respectively. The social welfare faculty research seminar (SOC WORK 946 Faculty Research Seminar, fall semester); and two student research seminars (SOC WORK 947 Student Research Seminar, spring semesters) provide opportunity for professional socialization to the field and development of research interests.

The curriculum is designed to require students to take some courses in departments throughout the campus, based on their individualized learning needs. Students take substantive and research courses focusing on topics related to their specialization. A wide selection of courses in world-renowned social and behavioral science departments is available. Students select an approved social science theory course; two statistics courses (SOC/C&E SOC 361 Statistics for Sociologists II–SOC 362 Statistics for Sociologists III or ED PSYCH 760 Statistical Methods Applied to Education I–ED PSYCH 761 Statistical Methods Applied to Education II); two substantive elective courses; two statistics/methodology elective courses. Years three and four (or five) are dedicated to the preparation and completion of preliminary examinations and dissertation research.

## FUNDING

Prospective students should see the program website (<https://socwork.wisc.edu/phdfunding>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

## DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

All degree coursework must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

Doctoral students may apply credits obtained in other graduate programs toward the Ph.D. program minimum degree requirement and minimum graduate coursework (50%) requirement. Graduate credits from other institutions may not be used to fulfill the minimum graduate residence credit requirement. Coursework earned 10 or more years prior to admission to the Ph.D program may not be used to satisfy degree credit minimums.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

Doctoral students cannot use credits obtained as undergraduate students toward the Ph.D. program requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, doctoral students may apply up to 15 credits numbered 300 and above obtained as UW–Madison University Special students toward the Ph.D. program minimum graduate residence credit requirement and the minimum graduate degree credit requirement. That coursework may not be applied to the minimum graduate coursework (50%) requirement unless taken at the 700 level or above. Coursework earned 10 or more years prior to admission to the Ph.D program may not be used to satisfy degree credit minimums.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral Social Welfare students are not required to complete a minor.

### OVERALL GRADUATE GPA REQUIREMENT

3.00

### OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher

grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

## ASSESSMENT AND EXAMINATIONS

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

## TIME CONSTRAINTS

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

Contact the program for information on any language requirements.

## ADMISSIONS

Online applications are available through the Graduate School Electronic Application (<http://grad.wisc.edu/apply>). Admission to the Ph.D. program requires an undergraduate grade point average of at least 3.00 (on a 4.00 scale) on the equivalent of the last 60 semester credits. Applicants are required to have completed a statistics course; 30 semester credits of social science courses and Graduate Record Examination (GRE) scores taken within five years of application date; if appropriate, English proficiency exam (TOEFL) scores, taken within two years of application date. Applicants must also submit a statement of reasons for graduate study, three letters of recommendation, official transcripts, a writing sample, and a resume or CV.

Ph.D. program details are fully described on the School of Social Work website (<http://socwork.wisc.edu>).

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Acquire a breadth of knowledge of social welfare policies and programs and related bodies of theory.
- Improve social work and social welfare practices.
- Conceptualize, develop and analyze innovative approaches to ameliorating or reducing social problems.
- Identify the causes and consequences of significant individual, family and community outcomes.
- Apply advanced statistics, methodology, and data analysis for research purposes.
- Develop new approaches to the analysis of social programs and policies.

### PROFESSIONAL CONDUCT

- Develop and demonstrate ethical and professional skills necessary for a career as a social welfare scholar.

### ADDITIONAL LEARNING GOALS

- Teach courses in a program or school of social work.
- Translate research findings into policy and program practice.

## PEOPLE

**Faculty:** Professors Berger (program chair), Brower, Cancian, Greenberg, Kramer, Magnuson, Mailick, Meyer, Robert (school director), Slack; Associate Professors Curtis, Haley-Lock, Moses, Schroepfer; Assistant Professors Glass, Ros Pilarz, Walsh, Xiong

## SOCIAL WORK, MSW

The MSW program (full-time and part-time) is accredited by the Council on Social Work Education (CSWE). Full-time students attending on a full-time basis generally complete the program in two academic years; Part-time students complete it in four. Students from CSWE-accredited undergraduate social work programs may be granted up to one year of advanced standing in the full-time program or up to two years advanced standing in the part-time program for comparable coursework taken prior to enrollment.

### MSW PROGRAM GOALS

- To provide students with generalist practice content for entry-level practice that builds upon a liberal arts perspective, reinforces the mission of the school, and fosters the values, ethics, and purposes of the profession of social work.
- To provide students with advanced generalist practice knowledge, skills, and values in an area of focus to be autonomous social work practitioners prepared to confront the realities of a changing social and human services environment, and to be leaders in the development of new approaches for practice.
- To provide students with a generalist social work framework for practice; foster a commitment to social, economic and environmental



justice; and prepare students with the requisite knowledge, skills, and values for culturally competent practice.

The school's curriculum is generalist social work practice in orientation. In their courses across the curriculum, faculty interweave: content about social work values and ethics; content that promotes understanding, affirmation, and respect for people from diverse backgrounds; content on populations-at-risk, including strategies to respond to and strategies to redress risk factors; and content on social, economic and environmental justice grounded in an understanding of distributive justice, human and civil rights, and the global interconnections of oppression.

The generalist practice year curriculum emphasizes direct practice across system sizes (micro-to-macro). Students take courses in social welfare policies and services, human behavior and the social environment (including social work with ethnic and racial groups; and psychopathology for generalist practice), research methods, social work practice (including generalist practice with individuals, families, and groups; and generalist practice with organizations and communities), and a field course that includes a social work practice integrative seminar and social work field placement.

The advanced curriculum offers an advanced generalist specialization with areas of focus in: aging; child, youth, and family welfare; health; and mental health. The advanced generalist specialization requires that students complete an advanced practice course (e.g., advanced practice in health; aging and mental health; interventions with children, youth, and families; psychopathology for social work practice in mental health); a social policies and services course (e.g., child welfare services or child, youth and family policies and services; health, aging, and disability policy and services; mental health policies and services); an advanced macro practice course; and advanced generalist social work field course that includes a social work practice integrative seminar and a social work field placement specific to the student's area of focus.

Individualized subfocus areas are also available and are constructed with assistance from the academic advisors.

## SOCIAL WORK COMPETENCIES AND PRACTICE BEHAVIORS

At the conclusion the MSW program we expect students have achieved the core competencies outlined below through practice behaviors learned in classroom and field experiences. Graduates should be able to:

- Demonstrate ethical and professional behavior
- Engage diversity and difference in practice
- Advance human rights and social, economic and environmental justice
- Engage in practice-informed research and research-informed practice
- Engage in policy practice
- Engage with individuals, families, groups, organizations and communities
- Assess individuals, families, groups, organizations and communities
- Intervene with individuals, families, groups, organizations and communities
- Evaluate practice with individuals, families, groups, organizations and communities

At the end of the generalist practice curriculum sequence, students are expected to evidence the identified generalist practice behaviors for each competency. At the end of the advanced year, students are expected to have achieved the competencies through both generalist

practice behaviors and advanced practice behaviors in the advanced generalist specialization with an area of focus learned in classroom and field experiences—all of which are derived from social work knowledge, values, and skills.

## SCHOOL SOCIAL WORK AND CLINICAL PRACTICE LICENSURE, CHILD WELFARE TRAINING

Students seeking preparation for licensure as a school social worker in the State of Wisconsin typically complete the child, youth, and family welfare focus area. Students seeking preparation for licensure as a clinical social worker in the State of Wisconsin or State of Minnesota typically complete the mental health focus area. Contact the full-time program social work academic advisors or part-time program advisors (see contact information on the program website (<https://socwork.wisc.edu/facstaff-advising>)) for a complete list of requirements necessary for these credentials. Information on social work certification and licensure is presented to students periodically during the academic year and is detailed in the Advanced Generalist Specialization Handbook (<http://socwork.wisc.edu/files/ConcentrationHandbook.pdf>) appendixes.

Federal Title IV-E funding is available to full- and part-time MSW students for training in public child welfare. After acceptance into the school, generalist year or advanced practice year students may apply to this special program designed to prepare advanced practitioners for practice in public child welfare. Students complete a specialized curriculum within the child, youth, and family welfare concentration. Students accepted into the training program receive tuition (in- or out-of-state), a book allowance, a mileage allowance, and a monthly stipend each year they are in the program. In return, after graduation, child welfare trainees agree to work in a public child welfare position in the State of Wisconsin for each year they received funding. For complete details, contact the Title IV-E program coordinator (contact information available on the program website (<https://socwork.wisc.edu/facstaff-all>)).

## PART-TIME MSW PROGRAM

The part-time MSW program is offered on two sites: the UW–Madison campus for those in the greater Madison area and on the UW–Eau Claire campus for those who live in the northwest part of the state. The part-time MSW program is designed to allow students who are not able to pursue full-time study to work toward an MSW degree on a structured, time-extended basis.

- Courses are offered on Saturdays at both sites.
- Fieldwork options may include place of employment.
- Traditional and advanced standing options are offered.
- Focus Areas in: aging, health or health and aging; child, youth and family welfare; or mental health are offered.

Applicants must meet the usual School of Social Work admission requirements to be accepted into the program.

## FIELD EDUCATION PROGRAM

Generalist practice year social work students complete two semesters (256 hours per semester) of field work (SOC WORK 400 Field Practice and Integrative Seminar I, SOC WORK 401 Field Practice and Integrative Seminar II) concurrent with their generalist practice coursework, starting in the fall semester. Advanced practice year students complete two semesters (320 hours per semester) of field work (SOC WORK 800 Field Practice and Integrative Seminar III, SOC WORK 801 Field Practice and Integrative Seminar IV) concurrent with their advanced practice concentration coursework, beginning in the fall semester.

The field units are organized around a social problem area, a field of practice, or a major intervention method. Each unit has a range of field placement agencies and settings appropriate to its theme. The emphasis for SW 400-level placements is on a generalist perspective and direct practice experience. The focus is on learning and applying analytic and interventive skills within an ethically based, problem-focused approach.

SW 800-level field emphases are practice from an advanced generalist perspective with either a direct or indirect practice experience. The focus is on autonomous practice and advanced practice knowledge and skills in an area of concentration.

The following field units are available to generalist practice year and/or advance practice year MSW students in the full time program. These units represent more than 100 placements in agencies and organizations throughout Dane and its contiguous counties.

- Social work practice in community agencies
- Social work practice in community mental health agencies
- Social work practice in county human services
- Social work practice in intellectual and other disabilities
- Social work practice in educational settings
- Social work practice in health
- Social work practice in juvenile and criminal justice systems
- Social work practice in mental health
- Social work practice with older adults
- Social work practice in policy and administration
- Social work practice in public and private child welfare
- Social work practice in public child welfare

Field units offered in the part-time MSW program at both program sites are:

- Social work practice in community agencies
- Social work practice in child and family welfare: public, private and educational settings
- Social work practice in aging and/or health (depending on student demand)
- Social work practice in mental health

Social work applicants should be advised that state statutes require the Department of Justice to conduct background checks on all potential field students prior to the field experience. Information regarding this process is provided to students after they are accepted into the School of Social Work.

## FUNDING

Master's students are eligible for School of Social Work awards (Federal Training Grants when available, Veterans Administration stipends, Arthur Miles Scholarship, Beebe Memorial Scholarship, Katherine Benz Scholarship, Richard Schwert and Helen I. Clark Memorial Awards, Katherine Becker Norman Memorial Award, Lois Palmer Shimp Award, and several others). Graduate Opportunity Fellowships are designed to expand graduate education for U.S. minority group members. For complete details regarding qualifications and applications for these awards, see Scholarships, Awards and Fellowships (<http://socwork.wisc.edu/awards>) on the school's website.

Ph.D. students who meet specific criteria are eligible for university awards (e.g., Advanced Opportunity Fellowship and University

Fellowship). Doctoral students are also eligible for travel awards for research abroad and, once a dissertator, for the Graduate Student Collaborative's Vilas Award for professional development. All students have access to federal loans and work study. In addition, Ph.D. students are considered for graduate assistantships (i.e., teaching, research, and project assistantships) which typically cover tuition, health insurance, and provide a monthly stipend.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

MSW, with available named options Part Time MSW Eau Claire, and Part Time MSW Madison

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of degree coursework must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS FROM: GRADUATE WORK FROM OTHER INSTITUTIONS

Graduate credits in equivalent foundation/generalist courses completed with a grade of B or better taken at CSWE-accredited MSW programs may be used to fulfill the Minimum Degree Credit Requirement. In general, coursework earned five or more years prior to admission to the MSW Program may not be used to satisfy degree credit minimums. Graduate credits from other MSW programs/institutions may not be used to fulfill the Minimum Residence Credit Requirement.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNDERGRADUATE

MSW students who have received BSWs from CSWE accredited programs may count 7 credits of their undergraduate coursework in the BSW program. UW-Madison BSWs may count only those courses numbered 300 or above toward their minimum graduate degree credit requirement. Coursework earned five or more years prior to admission to the MSW program may not be used to satisfy credit requirements.

### PRIOR COURSEWORK REQUIREMENTS FROM: UW-MADISON UNIVERSITY SPECIAL

On a case-by-case basis Generalist/Foundation Social Work courses numbered 300 or above taken as a UW-Madison Special student may be

used to fulfill degree requirements. No more than 15 credits generalist/foundation credits may be used for this purpose.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

First-year MSW students complete generalist/foundation practice courses unless granted an exemption:

Code	Title	Credits
SOC WORK 400	Field Practice and Integrative Seminar I	2-6
SOC WORK 401	Field Practice and Integrative Seminar II	2-6
SOC WORK 441	Generalist Practice with Individuals, Families and Groups	1-3
SOC WORK 442	Generalist Practice with Communities and Organizations	1-2
SOC WORK 605	The Field of Social Work	2
SOC WORK 606	Social Policy	2
SOC WORK 640	Social Work with Ethnic and Racial Groups	2-3
SOC WORK 650	Methods of Social Work Research	2-3
SOC WORK 711	Human Behavior and the Environment	2
SOC WORK 712	Psychopathology for Social Work Practice in Mental Health	3

In general, generalist practice/ foundation courses must be completed before beginning advanced practice courses.

Second-year MSW students: complete advanced courses as outlined in the MSW Program Concentration Handbook.

## OVERALL GRADUATE GPA REQUIREMENT

3.00

## OTHER GRADE REQUIREMENTS

Grades of C are accepted only if they are offset by an equal number of credits of A. Candidates who receive more than two grades of C (in courses that do not extend beyond one term) or a grade of D or F while in the program will be dropped from the MSW Program. Candidates who receive a grade of C in the Field and Integrative Seminar courses may continue only with permission of the faculty and may not offset the grade with a grade of A. (This policy does not apply to grades received for courses taken to meet the statistics prerequisite while in the program).

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

All masters candidates are assigned to the social work academic advisors.

## ASSESSMENT AND EXAMINATIONS

None

## TIME CONSTRAINTS

Full-Time Program students matriculating through the Full-Time MSW program on a part-time basis must enroll in a minimum of two courses each semester and complete one full-time semester of at least 8 credits. Candidates who withdraw from the Full-Time Program without having completed at least 8 credits must reapply for admission to the program. Students who withdraw from the Part-Time MSW Program without having completed at least 6 credits must reapply for admission to the Part-Time Program.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

None

## ADMISSIONS

Online applications are available through the School of Social Work website (<http://socwork.wisc.edu>).

**Admission into the master's degree program** includes the Graduate School requirement that applicants hold a minimum undergraduate GPA of 3.0 (on a 4.0 scale) on the equivalent of the last 60 semester hours (approximately two years of work) from an accredited university or college.

Applicants apply online to through the Graduate School's application site: Graduate School Electronic Application (<https://grad.wisc.edu/apply>). A complete application includes both the Graduate School application and the School of Social Work's supplemental application forms.

In addition to their application forms prospective MSW students submit: reasons for graduate study essay, official transcripts from each university or college attended, the names and e-mail addresses of three persons who will submit letters of recommendation on the applicant's behalf, criminal background check information, and Test of English as a Foreign Language (TOEFL), or International English Language Testing System (IELTS) scores (if applicable). The Graduate Record Exam (GRE) is optional. A School of Social Work admissions committee acceptance recommendation to the Graduate School is required for unconditional admission. Prerequisites for entrance into the MSW program include:

1. completion of 30 semester credits of social science courses at the point the application is submitted; and
2. completion of an approved statistics course with a grade of C or better, taken within seven years prior to entrance into the program.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Engage diversity and difference in practice.
- Advance human rights and social, economic, and environmental justice.

- Engage in practice-informed research and research-informed practice.
- Engage in policy practice.
- Engage with individuals, families, groups, organizations, and communities.
- Assess individuals, families, groups, organizations, and communities.

## PROFESSIONAL CONDUCT

- Demonstrate ethical and professional behavior.

## ADDITIONAL LEARNING GOALS

- Intervene with individuals, families, groups, organizations, and communities.
- Evaluate practice with individuals, families, groups, organizations, and communities.

## PEOPLE

**Faculty:** Professors Robert (director), Berger, Brower, Cancian, Greenberg, Kramer, Magnuson, Mailick, Meyer, Shook Slack; Associate Professors Curtis, Haley-Lock, Moses, Schroepfer; Assistant Professors Bishop-Fitzpatrick (2017), Glass, Ros Pilarz, Walsh, Xiong. A complete list of all faculty and staff in the school is available here (<https://socwork.wisc.edu/facstaff-all>).

# SOCIOLOGY

**Administrative Unit:** Sociology

**College/School:** College of Agricultural and Life Sciences, College of Letters & Science

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor in Sociology; Doctoral Minor in Science and Technology Studies

The Department of Sociology and the Department of Community and Environmental Sociology conduct a combined graduate program in sociology designed to prepare students for scholarly research, teaching, or applied work. The program leads to the master of science degree with a major in sociology and the doctor of philosophy degree in sociology. It also offers a minor to students earning a doctoral degree in other departments. All major areas of sociological inquiry are represented in the curriculum. The program consistently ranks at or near the top in studies of U.S. doctoral programs.

Distinguished faculty, outstanding students who learn from and support each other, an increasingly multi-ethnic student body, a curriculum covering a broad spectrum of sociological interests, thriving research projects in many areas, and a stimulating campus environment make UW–Madison an excellent choice for students interested in sociology and/or community and environmental sociology.

Members of the departments also participate in a number of interdisciplinary programs. Faculty and students are involved with several research institutes, including the Center for Demography and Ecology, the Center for Demography of Health and Aging, the Center on Wisconsin Strategy, the Institute for Research on Poverty, the Institute on Aging, the Wisconsin Center for Education Research, the University of Wisconsin Survey Center, the Applied Population Laboratory, the Holtz Center for Science and Technology Studies, the Nelson Institute for Environmental Studies, and the Center for Integrated Agricultural Systems. Further information about faculty and areas of study is available on the department websites: Department of Sociology (<http://www.ssc.wisc.edu/soc>), and Department of Community and Environmental Sociology (<http://dces.wisc.edu>).

## DEGREES AND CAREER GOALS

The sociology graduate program admits students who intend to earn a Ph.D. Students complete a master of science degree on the way to the Ph.D. or receive a waiver of the program's master's requirements based on their having written a thesis and obtained a master's degree previously. A few students leave the program after completing the master's degree and pursue careers in the public and private sectors. Of those who graduate with the Ph.D., a majority obtain university teaching and/or research positions; others take research and/or administrative positions in government organizations or private firms.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Science and Technology Studies, Doctoral Minor (p. 685)
- Sociology, Doctoral Minor (p. 686)
- Sociology, M.S. (p. 686)

- Sociology, Ph.D. (p. 689)

## PEOPLE

**Faculty:** Professors Oliver (chair, Sociology), Green (chair, Community and Environmental Sociology), Bell, Borman (affiliated), Carlson, Collins, DeLamater, Emirbayer, Ermakoff, Ferree, Ford (affiliated), Friedland (affiliated), Fujimura, Gerber, Goldberg, Goldrick-Rab (affiliated), Herd, Kleinman, Logan, Massoglia, Maynard, Montgomery, Nordheim (affiliated), Raymo, Rogers (director, COWS), Schaeffer (director, UWSC), Schwartz, Seidman, Stoecker, Thornton (affiliated), Tigges, Wright; Associate Professors Alatout, Christens (affiliated), Curtis, Elwert, Feinstein, Fletcher, Freeland (director, Graduate Studies), Grodsky, Lim, Morales (affiliated), Nobles, Shoemaker (affiliated); Assistant Professors Conti, Engelman, Garoon, Goffman, Grant, Leachman (affiliated), Liu, Simmons (affiliated), Vargas, White, Xiong (affiliated)

## SCIENCE AND TECHNOLOGY STUDIES, DOCTORAL MINOR

Science and technology studies integrates knowledge about science, technology, and medicine with society, culture, and the economy. This interdisciplinary field of study incorporates a broad base of scholarship to provide a nuanced picture of science and technology as human enterprises, situated in wider historical, social, and cultural contexts.

The science and technology studies (STS) program offers a doctoral minor.

The doctoral minor in STS is offered to graduate students who are candidates for a Ph.D. degree in another department or program. The STS doctoral minor provides graduate students with an integrated program of interdisciplinary training in science and technology studies. The minor is open to students in all campus departments, including the humanities, social sciences, natural sciences, and engineering. The program is oriented toward helping students use insights from STS in their research and teaching.

## REQUIREMENTS

All graduate students who are interested in the doctoral minor in STS should consult as soon as possible with the director of the Holtz Center for Science and Technology Studies. Graduate students will work with the director to choose an adviser from the center's affiliated faculty members. The advisor will assist in planning the student's program of education.

Completion of the course requirements must be arranged in close consultation with the student's Holtz Center affiliated advisor and assistant director.

Students working on an STS minor are required to take one core graduate seminar, STS 901 Science, Technology and Medicine in Society, which introduces students to the perspectives on science, technology, and society that transcend any single discipline. In addition, students in the Ph.D. minor are required to complete a set of thematic courses (amounting to 6–9 credits) outside of the student's major field of study. The course of study must consist of classes from at least two different departments. These courses will serve to promote each student's

interdisciplinary understanding of the relationship between science/technology and society/culture. Students are required to achieve a grade of B or better in each course. Students pursuing the minor are also expected to attend the biweekly STS brown bag seminar, as well as frequent the STS speaker series and other Holtz Center events.

Students may request the inclusion of courses not on the approved list. An example is a relevant topics course. The request must be in writing and must include a copy of the course syllabus. All requests should be sent to the center director.

## PEOPLE

**Faculty:** Please visit the program website (<http://sts.wisc.edu/members/faculty-infobios>) for a comprehensive list of participating faculty.

## SOCIOLOGY, DOCTORAL MINOR

Sociology involves the development and application of theoretical insights and empirical evidence regarding human behavior as social beings, focusing on how social life works, what causes social change, and why humans behave in the ways they do. The discipline focuses on social interactions and social processes at the individual, group, state, and global levels. The Department of Sociology trains Ph.D. students to become outstanding social scientists working in academia, government, the non-profit sector, and private industry. Students will demonstrate a broad understanding of major theories, methodologies, and research findings in the sociological literature. Ph.D. students will advance the contributions of sociological study to society by conducting research that explores complex ideas, analyzes quantitative and qualitative data, and disseminates new knowledge. In so doing, they will contribute to the vast body of scholarship and applied work that leads to the improvement of society.

## REQUIREMENTS

An Option A minor in Sociology is composed of 9 credits of graduate-level coursework in either the Department of Sociology or the Department of Community and Environmental Sociology. The departments do not require students to take specific courses; instead, students are encouraged to meet with the sociology graduate advisor to discuss their interests and goals and to find out which courses may be useful to them and when they are likely to be offered. Students may enroll in any graduate-only courses (i.e., those numbered 700–999) with the exception of SOC 700 Introductory Proseminar for Graduate Students and SOC 990 Thesis. They may also enroll in any of the advanced graduate-undergraduate courses (i.e., those numbered 300–699) that are either specifically designed for graduate students or assess graduate students separately from undergrads. Such courses carry this designation in the Course Guide: **Graduate 50%: Y.**

## ADMISSIONS

For more information, contact: Charlotte Frasca, 8127 Social Science Building, 608-262-3805, [frascona@ssc.wisc.edu](mailto:frascona@ssc.wisc.edu).

## PEOPLE

**Faculty:** Professors Oliver (chair, Sociology), Green (chair, Community and Environmental Sociology), Bell, Borman (affiliated), Carlson, Collins, DeLamater, Emirbayer, Ermakoff, Ferree, Ford (affiliated), Friedland (affiliated), Fujimura, Gerber, Goldberg, Goldrick-Rab (affiliated), Herd, Kleinman, Logan, Massoglia, Maynard, Montgomery, Nordheim (affiliated), Raymo, Rogers (director, COWS), Schaeffer (director, UWSC), Schwartz, Seidman, Stoecker, Thornton (affiliated), Tigges, Wright; Associate Professors Alatout, Christens (affiliated), Curtis, Elwert, Feinstein, Fletcher, Freeland (director, Graduate Studies), Grodsky, Lim, Morales (affiliated), Nobles, Shoemaker (affiliated); Assistant Professors Conti, Engelman, Garoon, Goffman, Grant, Leachman (affiliated), Liu, Simmons (affiliated), Vargas, White, Xiong (affiliated)

## SOCIOLOGY, M.S.

The Department of Sociology and the Department of Community and Environmental Sociology conduct a combined graduate program in sociology designed to prepare students for scholarly research, teaching, or applied work. The program leads to the master of science degree with a major in sociology and the doctor of philosophy degree in sociology. It also offers a minor to students earning a doctoral degree in other departments. All major areas of sociological inquiry are represented in the curriculum. The program consistently ranks at or near the top in studies of U.S. doctoral programs.

Distinguished faculty, outstanding students who learn from and support each other, an increasingly multi-ethnic student body, a curriculum covering a broad spectrum of sociological interests, thriving research projects in many areas, and a stimulating campus environment make UW–Madison an excellent choice for students interested in sociology and/or community and environmental sociology.

Members of the departments also participate in a number of interdisciplinary programs. Faculty and students are involved with several research institutes, including the Center for Demography and Ecology, the Center for Demography of Health and Aging, the Center on Wisconsin Strategy, the Institute for Research on Poverty, the Institute on Aging, the Wisconsin Center for Education Research, the University of Wisconsin Survey Center, the Applied Population Laboratory, the Holtz Center for Science and Technology Studies, the Nelson Institute for Environmental Studies, and the Center for Integrated Agricultural Systems. Further information about faculty and areas of study is available on the department websites: Department of Sociology (<http://www.ssc.wisc.edu/soc>), and Department of Community and Environmental Sociology (<http://dces.wisc.edu>).

## DEGREES AND CAREER GOALS

The sociology graduate program admits students who intend to earn a Ph.D. Students complete a master of science degree on the way to the Ph.D. or receive a waiver of the program's master's requirements based on their having written a thesis and obtained a master's degree previously. A few students leave the program after completing the master's degree and pursue careers in the public and private sectors. Of those who graduate with the Ph.D., a majority obtain university teaching and/or research positions; others take research and/or administrative positions in government organizations or private firms.

## FUNDING

The departments guarantee five continuous years of funding to all incoming students. Sources of funding include teaching assistantships, project assistantships, research assistantships, traineeships, and fellowships. In addition, some admitted students arrive with outside fellowships such as National Science Foundation or Fulbright awards.

International applicants admitted to the program must complete a financial statement that provides evidence of sufficient funds to support themselves for their first year and the intent for support to continue throughout the duration of study. Even though departmental funding is guaranteed, international students must often provide additional financial support documentation, showing they can cover the gap between the amount the departments provide and the amount the U.S. State Department requires. Additional information about international student expenses can be found here (<http://grad.wisc.edu/international>).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of the coursework (i.e., 15 of the required 30 credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With Program approval, students may count up to 14 credits of graduate coursework from other institutions toward the minimum 30-credit master's degree requirement and the minimum 50% graduate coursework requirement. Coursework completed five or more years prior to admission to the master's program may not be used to satisfy either of these requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students may count up to 7 credits earned in an undergraduate degree program at UW-Madison toward the master's degree requirements. If the courses are numbered 300–699, the credits may count toward the minimum 30-credit degree requirement. If the

courses are numbered 700–999, the credits may also count toward the minimum 50% graduate coursework requirement. Coursework completed five or more years prior to admission to the master's program may not be used to satisfy either of these requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students may count up to 15 credits taken as a Special Student toward the Master's degree requirements. If the courses are numbered 300–699, the credits may count toward the minimum 30-credit degree requirement. If the courses are numbered 700–999, the credits may also count toward the minimum 50% graduate coursework requirement. Coursework completed five or more years prior to admission to the master's program may not be used to satisfy either of these requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
SOC 700	Introductory Proseminar for Graduate Students	1
SOC/C&E SOC 361	Statistics for Sociologists II	3
SOC 773	Intermediate Classical Theory	3
Select one of the following:		3
SOC 735	Ethnomethodology & Conversation Analysis	
SOC/C&E SOC 750	Research Methods in Sociology	
SOC 751	Survey Methods for Social Research	
SOC 753	Comparative and Historical Methods in Sociology	
SOC 754	Qualitative Research Methods in Sociology	
SOC 756	Demographic Techniques II	

### OVERALL GRADUATE GPA REQUIREMENT

3.25 GPA required (3.0 in the first semester)

### OTHER GRADE REQUIREMENTS

Students must earn a BC or above in all required courses. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

### PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; student must submit an advisor-approved plan outlining specific steps for removal of probationary status and deadlines for doing so).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll).

## ADVISOR / COMMITTEE

The director of graduate studies serves as an entering student's advisor until the student has arranged for a faculty member who has shared interests to serve as his/her advisor and thesis director. Students are expected to have ongoing contact with their faculty advisor. All students are required to submit a yearly progress report that is read and discussed by a committee of faculty at an annual review.

## ASSESSMENTS AND EXAMINATIONS

Master's students write a thesis under the supervision of their major professor. After completing the thesis, students take a comprehensive oral exam covering general sociology, graduate work to date, and the thesis.

Occasionally students decide not to pursue the Ph.D. and opt to complete the requirements for a non-thesis master's degree. In these rare cases, students complete course requirements and take the comprehensive oral exam.

## TIME CONSTRAINTS

Students are expected to complete the master's degree by the end of the summer after their third year in the program.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The program receives a large number of applications each fall from highly qualified individuals, requiring the admissions committee to be extremely selective. There is a very strong preference for students planning to pursue a Ph.D.; students whose goal is a master's are rarely accepted. A cohort of around 20 students is ideal, in terms of providing quality training and making financial support available to all admitted students. Total graduate enrollment in the program is approximately 140 students. An undergraduate major in sociology is not a prerequisite. The admissions committee looks for academic excellence as indicated by undergraduate GPA and Graduate Record Exam (GRE) scores, a writing sample, and references, plus interest in and motivation for graduate study in sociology as indicated by the statement of purpose. However, a weakness in one indicator can be balanced by evidence of strong abilities in the others. To apply, please submit an online application, all transcripts, statement of reasons for graduate study, writing sample, recommendations, and tests scores. GRE scores (general test only) are required of all applicants; in addition, international applicants are required to submit English Proficiency test scores—either TOEFL, MELAB, or IELTS.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will demonstrate a broad understanding of major theories, methodologies, and research findings in the sociological literature. They will also develop critical thinking skills that empower them to analyze strengths and weaknesses in the existing literature, identify knowledge gaps, evaluate evidence, synthesize information, and form conclusions. They will thus attain the skills necessary to conduct research with intellectual and ethical rigor, care, and creativity.
- Students will complete an original research project in one of the subfields of sociology. In doing so, they will learn to formulate ideas

and develop research questions, interpret and evaluate existing literature on the topic, design a feasible research project, use an appropriate methodology, analyze and interpret the resulting data, and consider avenues for future research. They will write a thesis describing their research project and defend it during a comprehensive oral exam.

- Students will develop an understanding of the field of sociology by participating in a required introductory proseminar as well as completing required courses in sociological theory, research methods, and statistics along with elective courses in their area of interest. They will demonstrate their understanding by working as teaching assistants, project assistants, research assistants, and trainees; by presenting work-in-progress at informal brownbag colloquia; by preparing and submitting manuscripts resulting from their research for publication in respected journals; and by submitting papers for presentation at professional conferences.
- Students will retrieve, interpret, and evaluate social science literature and use it, along with their own understanding of relevant methodologies, to employ the most appropriate methods and practices in their own research.
- Students will develop analytical thinking skills that enable them to evaluate information pertinent to their research questions. They will also develop the breadth of knowledge and experience that empowers them to synthesize disparate information and use the resulting synthesis to respond creatively to challenges in their field of study.
- Students will communicate in a clear, organized, engaging manner, using language, methods, and critical tools appropriate to the social sciences. They will learn to develop grant proposals; gather, manage, and analyze data; write a thesis that is thought-provoking, concise, and persuasive; present research informatively; listen with care and patience; and give and receive feedback orally and in writing.

## PROFESSIONAL CONDUCT

- Students will understand, recognize, and apply principles of ethical and professional conduct by developing effective relationships with faculty mentors, graduate student colleagues, and the undergraduate students whom they teach. In addition, they will design research, collect and analyze data, and interpret and report results with honesty and scientific rigor.

## PEOPLE

**Faculty:** Professors Oliver (chair, Sociology), Green (chair, Community and Environmental Sociology), Bell, Borman (affiliated), Carlson, Collins, DeLamater, Emirbayer, Ermakoff, Ferree, Ford (affiliated), Friedland (affiliated), Fujimura, Gerber, Goldberg, Goldrick-Rab (affiliated), Herd, Kleinman, Logan, Massoglia, Maynard, Montgomery, Nordheim (affiliated), Raymo, Rogers (director, COWS), Schaeffer (director, UWSC), Schwartz, Seidman, Stoecker, Thornton (affiliated), Tigges, Wright; Associate Professors Alatout, Christens (affiliated), Curtis, Elwert, Feinstein, Fletcher, Freeland (director, Graduate Studies), Grodsky, Lim, Morales (affiliated), Nobles, Shoemaker (affiliated); Assistant Professors Conti, Engelman, Garoon, Goffman, Grant, Leachman (affiliated), Liu, Simmons (affiliated), Vargas, White, Xiong (affiliated)



## SOCIOLOGY, PH.D.

The Department of Sociology and the Department of Community and Environmental Sociology conduct a combined graduate program in sociology designed to prepare students for scholarly research, teaching, or applied work. The program leads to the master of science degree with a major in sociology and the doctor of philosophy degree in sociology. It also offers a minor to students earning a doctoral degree in other departments. All major areas of sociological inquiry are represented in the curriculum. The program consistently ranks at or near the top in studies of U.S. doctoral programs.

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## DEGREES AND CAREER GOALS

The sociology graduate program admits students who intend to earn a Ph.D. Students complete a master of science degree on the way to the Ph.D. or receive a waiver of the program's master's requirements based on their having written a thesis and obtained a master's degree previously. A few students leave the program after completing the master's degree and pursue careers in the public and private sectors. Of those who graduate with the Ph.D., a majority obtain university teaching and/or research positions; others take research and/or administrative positions in government organizations or private firms.

## FUNDING

The departments guarantee five continuous years of funding to all incoming students. Sources of funding include teaching assistantships, project assistantships, research assistantships, traineeships, and fellowships. In addition, some admitted students arrive with outside fellowships such as National Science Foundation or Fulbright awards.

International applicants admitted to the program must complete a financial statement that provides evidence of sufficient funds to support themselves for their first year and the intent for support to continue throughout the duration of study. Even though departmental funding is guaranteed, international students must often provide additional financial support documentation, showing they can cover the gap between the amount the departments provide and the amount the U.S. State

Department requires. Additional information about international student expenses can be found here (<http://grad.wisc.edu/international>).

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of the coursework (i.e., 26 of the required 51 credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students may count up to 19 credits of graduate coursework from other institutions toward the minimum 51-credit Ph.D. degree requirement and the minimum 50% graduate coursework requirement. Coursework completed ten or more years prior to admission to the doctoral program may not be used to satisfy either of these requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, students may count up to 7 credits earned in an undergraduate degree program at UW–Madison toward the Ph.D. degree requirements. If the courses are numbered 300–699, the credits may count toward the minimum 51-credit degree requirement. If the courses are numbered 700–999, the credits may also count toward the minimum 50% graduate coursework requirement. Coursework completed ten or more years prior to admission to the doctoral program may not be used to satisfy either of these requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students may count up to 15 credits taken as a Special Student toward the Ph.D. degree requirements. If the courses are numbered 300–699, the credits may count toward the minimum 51-credit degree requirement. If the courses are numbered 700–999, the credits may also count toward the minimum 50% graduate coursework requirement. Coursework completed ten or more years prior to admission

to the doctoral program may not be used to satisfy either of these requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Code	Title	Credits
SOC/C&E SOC 361	Statistics for Sociologists II	3
SOC 362	Statistics for Sociologists III	3
SOC/C&E SOC 750	Research Methods in Sociology	3
SOC 773	Intermediate Classical Theory	3

Select four seminars in Sociology or Community and Environmental Sociology

## DOCTORAL MINOR/BREADTH REQUIREMENTS

All doctoral students are required to complete a minor comprised of 9 credits in one department or 9 credits united by a common theme in two or more departments.

## OVERALL GRADUATE GPA REQUIREMENT

3.25 GPA required

## OTHER GRADE REQUIREMENTS

Students must earn a BC or above in all required courses. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

## PROBATION POLICY

The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; student must submit an advisor-approved plan outlining specific steps for removal of probationary status and deadlines for doing so).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll).

## ADVISOR / COMMITTEE

Students are expected to have ongoing contact with their faculty advisor. Dissertators who fail to confer with their advisor at least once each semester will not be allowed to register in the subsequent semester. All students are required to submit a yearly progress report that is read and discussed by a committee of faculty at an annual review.

## ASSESSMENTS AND EXAMINATIONS

Ph.D. students must pass two six-hour written preliminary exams in two different sociology subfields as well as an oral prelim. They then write a dissertation under the supervision of their major professor. After completing the dissertation, students take a final oral exam covering the dissertation and the general field of the major and minor studies.

## TIME CONSTRAINTS

Doctoral students must complete the Ph.D. within five years of passing the oral preliminary examination and attaining dissertator status.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The program receives a large number of applications each fall from highly qualified individuals, requiring the admissions committee to be extremely selective. There is a very strong preference for students planning to pursue a Ph.D.; students whose goal is a master's are rarely accepted. A cohort of around 20 students is ideal, in terms of providing quality training and making financial support available to all admitted students. Total graduate enrollment in the program is approximately 140 students. An undergraduate major in sociology is not a prerequisite. The admissions committee looks for academic excellence as indicated by undergraduate GPA and Graduate Record Exam (GRE) scores, a writing sample, and references, plus interest in and motivation for graduate study in sociology as indicated by the statement of purpose. However, a weakness in one indicator can be balanced by evidence of strong abilities in the others. To apply, please submit an online application, all transcripts, statement of reasons for graduate study, writing sample, recommendations, and tests scores. GRE scores (general test only) are required of all applicants; in addition, international applicants are required to submit English Proficiency test scores—either TOEFL, MELAB, or IELTS.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Students will demonstrate a broad understanding of major theories, methodologies, and research findings in the sociological literature. They will also develop critical thinking skills that empower them to analyze strengths and weaknesses in the existing literature, identify knowledge gaps, evaluate evidence, synthesize information, and form conclusions. They will thus attain the skills necessary to teach and conduct research with intellectual and ethical rigor, care, and creativity.
- Students will create individualized programs to suit their specific interests and goals. In doing so, they will learn to formulate ideas and develop research questions, design feasible research projects, use appropriate methodologies, analyze and interpret the resulting data, and identify avenues for further exploration. Their original research will expand the current boundaries of knowledge in the field.
- Doctoral students will write seminar papers and conduct dissertation research, prepare and submit manuscripts resulting from their research for publication in respected journals, and submit papers for presentation at professional conferences. Their independent research will contribute substantively to scholarship in the field.
- Students will demonstrate breadth within their learning experience by taking at least four seminars, completing a minor area of study, and passing written preliminary exams in two different subfields. In addition, because our program emphasizes collective responsibility for training, students will be supervised and mentored by several faculty members with a range of expertise. They will also learn to mentor others.
- Ph.D. students will advance the contributions of sociological study to society by conducting research that explores complex ideas, analyzes quantitative and qualitative data, and disseminates new knowledge. In so doing, they will contribute to the vast body of scholarship and applied work that leads to the improvement of society. Students will also share theory, methodology, and the results of research with

the undergraduate students whom they teach and thereby foster an understanding of how social life works, what causes social change, and why humans behave in the ways they do.

## PROFESSIONAL CONDUCT

- Students will communicate complex ideas in a clear, organized, engaging manner to diverse audiences. They will craft effective grant proposals; gather, manage, and analyze data; write papers that are thought-provoking, concise, and persuasive; present research informatively; listen with care and patience; and give and receive feedback orally and in writing.
- Students will foster ethical and professional conduct by demonstrating respect for and having positive interactions with faculty members and staff, graduate student colleagues, and undergraduate students. They will also foster such conduct by the scientific rigor and honesty with which they design research, collect and analyze data, and interpret and report results.

## ADDITIONAL LEARNING GOALS

- Career Preparation: Students will prepare for a range of sustainable careers in academia as well as government, private industry, and the nonprofit sector. They will develop flexibility, leadership, and broadly applicable skills in critical thinking, problem solving, project management, collaboration, and communication.

## PEOPLE

**Faculty:** Professors Oliver (chair, Sociology), Green (chair, Community and Environmental Sociology), Bell, Borman (affiliated), Carlson, Collins, DeLamater, Emirbayer, Ermakoff, Ferree, Ford (affiliated), Friedland (affiliated), Fujimura, Gerber, Goldberg, Goldrick-Rab (affiliated), Herd, Kleinman, Logan, Massoglia, Maynard, Montgomery, Nordheim (affiliated), Raymo, Rogers (director, COWS), Schaeffer (director, UWSC), Schwartz, Seidman, Stoecker, Thornton (affiliated), Tigges, Wright; Associate Professors Alatout, Christens (affiliated), Curtis, Elwert, Feinstein, Fletcher, Freeland (director, Graduate Studies), Grodsky, Lim, Morales (affiliated), Nobles, Shoemaker (affiliated); Assistant Professors Conti, Engelman, Garoon, Goffman, Grant, Leachman (affiliated), Liu, Simmons (affiliated), Vargas, White, Xiong (affiliated)

## SOIL SCIENCE

**Administrative Unit:** Soil Science

**College/School:** College of Agricultural and Life Sciences

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The UW–Madison Department of Soil Science is one of the oldest, largest, and most prominent soil science departments in the United States. It is globally renowned for its excellence in soil research and education. The department's mission is to provide instruction, research, and extension leadership in soil chemistry, physics, biology, and pedology to economic and sustainable land use. Programs are designed to improve basic understanding and practical management of soil resources in natural, agricultural, and urban ecosystems, and to serve local, state, national, and global interests. The department implements the Wisconsin Idea to the extended community and provides all generations with an appreciation of soil as a key natural resource and thorough understanding of the scientific basis of the environment and agriculture.

Soil science entails understanding soils and applying the principles of physics, chemistry, mathematics, and biology to the sustainable management of soil and the environment. Soil science deals with the effects of climate change and its interaction with the soil, with scarcity of water resources, and the increase of food production to feed 9 billion people. The link between soils and biodiversity as well as the effects of soils on biofuel production is widely researched in the Department of Soil Science.

The department is committed to integrated programs of instruction, research, extension, and outreach that address societal goals of responsible stewardship of soil and water resources.

The importance of soils in crop production, environmental issues, turf and grounds management, soil conservation, global climate change, carbon sequestration, rural and urban planning, and waste disposal are integrated into the department's course offerings and research programs. Graduate study in soil science provides the basic and applied scientific training needed for teaching, research, and other professional work in the agricultural, earth, and environmental sciences. The department office provides information concerning career placement and available vacancies.

Graduates from the department occupy leading positions in industry, government, education, and research in agriculture, natural resources and environmental science throughout the world. Of the more than 1,000 alumni of the department's graduate program, many are deans, directors, chairs, faculty, and staff at universities in the U.S. and other countries, or in leading positions in government, regulatory agencies, research institutions, agribusinesses, chemical industries, and recreational and conservation organizations.

The number of graduate students enrolled in the program over the past 10 years has averaged 20 per year, with about half pursuing master's degrees and half pursuing doctorates. International students generally comprise about 30% of the total. Department faculty also direct additional graduate students in multidisciplinary research in soils-related programs.

## FACULTY RESEARCH

Research in the department focuses on an improved understanding of the soil, as well as on interactions between soil and the people of Wisconsin. The faculty have extensive and long-term experience and knowledge about the soils of Wisconsin, their genesis, properties and management. The department has an exciting suite of research activities ranging from the molecular level to the global. Research focuses on topical themes like climate change and soil changes to land use effects of biofuel production to DNA fingerprinting of soil life.

Many field-research projects on soil and water problems are conducted in cooperation with state and federal agencies, agribusinesses, municipalities, and private farmers. The department cooperates closely with the Wisconsin Geological and Natural History Survey, Molecular and Environmental Toxicology Center, and the USDA Natural Resource Conservation Service in conducting soil surveys and addressing problems of groundwater shortages and contamination. Relationships between soils and forests are studied at tree nurseries and in state, private, and commercial forests throughout the state in cooperation with the Wisconsin Department of Natural Resources and the pulp and paper industry.

Through a long commitment of our staff to international agriculture, the department has assisted in the creation of agricultural colleges in several developing countries and has attracted outstanding international graduate students. Current research involvement includes Brazil, Chile, China, Trinidad-Tobago, Spain, Australia, Argentina, and Antarctica.

Many department faculty have been recognized nationally and globally for their contributions to soil science. Three of only four soil scientists appointed to the National Academy of Sciences are from the UW–Madison Department of Soil Science. Several faculty members have received local and national academic, professional-society, trade-association, and industrial prizes and awards for teaching, research, and extension education and serve on important state, national, and international committees. Many faculty members have been recognized for their contributions by election to honorary fellowship in the Soil Science Society of America, the American Society of Agronomy, and allied professional societies.

Our faculty are heavily involved in cooperative interdisciplinary research undertakings with scientists and organizations within and beyond the university, such as UW–Madison's Gaylord Nelson Institute for Environmental Studies, Molecular and Environmental Toxicology Center, Environmental Chemistry and Technology Program, and other science departments, state agencies, environmental consulting and service companies, agribusinesses, and trade organizations.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Soil Science, Doctoral Minor (p. 693)
- Soil Science, M.S. (p. 693)
- Soil Science, Ph.D. (p. 696)

## RESOURCES

### RESEARCH FACILITIES

Research in the department can be conducted in the field, in the laboratory, behind the desktop, but is commonly conducted in a combination. The department is equipped with all necessary laboratory, computing, and field facilities for graduate training and research. State-of-the-art scientific instrumentation includes soil moisture tension apparatus; flame-emission and atomic-absorption spectrophotometers and gamma-ray spectrometers; neutron activation analysis equipment; an inductively coupled plasma (ICP)-emission spectrometer and an ICP-mass spectrometer; thin-layer, high-performance liquid, gas, and ion chromatographs; low-mass isotope ratio mass spectrometer; micro-respirometers; micro-titer-plate counters; infrared and ultraviolet spectrophotometers; phase-contrast, polarizing and epifluorescence microscopy and photomicrography equipment; eddy correlation systems for heat, moisture, and CO<sub>2</sub> fluxes; ground-penetrating radar; high-resolution digital imaging; dynamic light scattering and particle electrophoresis equipment; flow field flow fractionation; and accelerated solvent extractor. Field equipment includes a truck-mounted hydraulic soil probe with well-drilling capabilities; a plot-field harvest combine; various production field equipment (planters, tillage equipment, rainfall simulator); differential-global position system; and particle counter.

Excellent data-collection, datalogging, computing, and networking facilities are available for basic research and graduate training. In addition to computing facilities maintained by individual researchers for their students, the department makes available to its graduate students a computer graphics facility for the production of sophisticated graphic output.

Specialized facilities are available for research in molecular biology, modern environmental microbiology, in vitro toxicology and bioassays, and contaminated-site remediation. Soils graduate students and faculty have shared access to major advanced physicochemical, x-ray, and electron microscopy analytical equipment through the Materials Science Center, National Magnetic Resonance Facility at Madison, National Synchrotron Light Source at Brookhaven National Laboratories, and other UW–Madison science and engineering departments. Facilities, vehicles, machinery, and instrumentation are available for conducting field experiments at ten strategically located UW Agricultural Research Stations and the O.J. Noer Turfgrass Research and Education Facility. Fieldwork for agricultural production and environmental protection is supported by daily information from the CALS agricultural weather-station network as well as soils, crops, land-use, and natural resources analysis using land information systems and geographic information systems.

## PEOPLE

**Faculty:** Professors Hartemink (chair), Barak, Bland, Bleam, Hickey, Kung, Laboski, Long, Pedersen, Powell, Ventura; Associate Professors Balster, Ruark, Soldat; Assistant Professors Arriaga, Whitman

## SOIL SCIENCE, DOCTORAL MINOR

### REQUIREMENTS

A doctoral minor in soil science shall consist of a minimum of 10 credits in the Department of Soil Science. At least 5 of the 10 credits must be from courses numbered 500 or higher. One credit of SOIL SCI 728 Graduate Seminar may be applied towards the 10 credit minimum.

### PEOPLE

**Faculty:** Professors Hartemink (chair), Barak, Bland, Bleam, Hickey, Kung, Laboski, Long, Pedersen, Powell, Ventura; Associate Professors Balster, Ruark, Soldat; Assistant Professors Arriaga, Whitman

## SOIL SCIENCE, M.S.

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institutions, agribusinesses, chemical industries, and recreational and conservation organizations.

The number of graduate students enrolled in the program over the past 10 years has averaged 20 per year, with about half pursuing master's degrees and half pursuing doctorates. International students generally comprise about 30% of the total. Department faculty also direct additional graduate students in multidisciplinary research in soils-related programs.

## FACULTY RESEARCH

Research in the department focuses on an improved understanding of the soil, as well as on interactions between soil and the people of Wisconsin. The faculty have extensive and long-term experience and knowledge about the soils of Wisconsin, their genesis, properties and management. The department has an exciting suite of research activities ranging from the molecular level to the global. Research focuses on topical themes like climate change and soil changes to land use effects of biofuel production to DNA fingerprinting of soil life.

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## FUNDING

Financial support is usually available to qualified students in the form of research assistantships, mostly funded from research grants; final

decision for granting a research assistantship rests with the professor(s) supervising the research. Any assistantship for at least one-third time qualifies a student for remission of tuition (though students may be responsible for other administrative fees). The department does not offer teaching assistantships. A number of Graduate School fellowships are available to new students with outstanding records. The deadline for application for these competitive fellowships is early January of each year. The department selects the most qualified applicants and forwards their dossiers to a campus-wide selection committee. Support for graduate assistantships is available through two Wisconsin Distinguished Fellowships (the W.R. Kussow/Wisconsin Turfgrass Association and the Leo M. Walsh/Wisconsin Fertilizer and Chemical Association), the C.B. Tanner Agricultural Physics Award Fund, and the Charles and Alice Ream Soil and Water Protection Research Fund. In addition, there are two awards given annually to outstanding incoming graduate students, the O.N. Allen Graduate Fellowship for Agriculture and the Kelling Soil Fertility Award.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.S.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Candidates for the M.S. degree must earn a minimum of 15 credits of graduate coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 12 credits of graduate coursework taken during graduate study at other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits of graduate coursework numbered 300 or above from a UW–Madison undergraduate degree. The coursework may also count toward the 50% graduate coursework requirement if the courses are numbered 700 or above. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. The coursework may also count toward the 50% graduate coursework requirement if the courses are numbered 700 or above. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Courses in basic sciences: Candidates for an M.S. in soil science are required to have completed the basic science courses outlined in the departmental M.S. requirements document.

Courses in soil science: M.S. candidates must meet the minimum departmental course requirements for soils graduate degrees outlined in the departmental M.S. requirements document. M.S. candidates must enroll in a minimum of 1 credit of research (SOIL SCI 990 Research) every semester.

Seminar: All M.S. candidates must present at least one soil science graduate seminar (SOIL SCI 728 Graduate Seminar) for letter grade (>B) during their M.S. program. Each candidate must enroll in a soil science seminar every fall and spring semester; exceptions require the approval of the department chair.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Required courses in soil science must be completed with a grade of B or better (BC and C may not be offset by AB and A). For all other courses, the requirement is an average record of B or better in all work taken as a graduate student.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

The master's examination committee consists of at least three faculty members of defensible breadth, a minimum of two drawn from the soil science faculty. Defensible breadth shall be subject to certification committee approval. The third member of the committee must have a degree equivalent to that pursued by the student and be approved by the certification committee.

A proposed program for a M.S. candidate satisfying the minimum course requirements must be approved by the certification committee by the end of the first semester of M.S. graduate work. It is the responsibility of the student and the major professor to complete the departmental M.S. certification forms, arrange to be certified by the certification committee, and arrange for approval of revisions in the initial program if this becomes necessary.

## ASSESSMENTS AND EXAMINATIONS

Students are expected to present a written research plan to their committee no later than the end of the third semester of M.S. graduate work.

Candidates must present an open seminar on their M.S. thesis research, and pass a comprehensive examination (either oral, or an oral–written combination if requested by the candidate) on the graduate work offered in support of their candidacy.

Deposit of the master's thesis is required.

## TIME CONSTRAINTS

Students enrolled full time are expected to complete their degree requirements within two to three years.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

A foundation in the basic sciences is essential for graduate study in soil science. The program requires all students to have successfully completed one semester of calculus for the M.S. degree and two semesters of calculus (differential and integral) for the Ph.D., one course in statistics, nine credits of chemistry, and one year of physics. Admission with deficiencies is possible but is likely to delay completion of graduate studies.

The following materials must be submitted when applying to the program: an online application, official transcripts, Graduate Record Exam (GRE) scores, and three references. TOEFL scores are required for applicants whose native language is not English. Because graduate requirements presuppose extensive science coursework, continuing undergraduate students are encouraged to select undergraduate courses carefully if they are considering advanced degrees in soil science.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, and elaborates theories, research methods, and approaches in soil science.
- Identifies sources and assembles evidence addressing questions or challenges in soil science.
- Understands the field of soil science in historical, social, and global contexts.
- Selects and/or utilizes the appropriate methodologies and practices for soil science research.
- Evaluates or synthesizes information addressing research questions.
- Communicates clearly in oral and written forms.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Hartemink (chair), Barak, Bland, Bleam, Hickey, Kung, Laboski, Long, Pedersen, Powell, Ventura; Associate Professors Balster, Ruark, Soldat; Assistant Professors Arriaga, Whitman

## SOIL SCIENCE, PH.D.

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## FACULTY RESEARCH

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## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Candidates for the Ph.D. degree must earn a minimum of 26 credits of graduate coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 12 credits of graduate coursework taken during graduate study at other institutions. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits of graduate coursework numbered 300 or above from a UW-Madison undergraduate degree. The coursework may also count toward the 50% graduate coursework requirement if the courses are numbered 700 or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

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With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. The coursework may also count toward the 50% graduate coursework requirement if the courses are numbered 700

or above. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Courses in basic sciences: Candidates for a Ph.D. in soil science are required to have completed the basic science courses outlined in the departmental Ph.D. requirements document.

Courses in soil science: Ph.D. candidates must meet the minimum departmental course requirements for soils graduate degrees outlined in the departmental Ph.D. requirements document. Ph.D. candidates must enroll in a minimum of 1 credit of research (SOIL SCI 990 Research) every semester.

Seminar: All Ph.D. candidates must present at least two soil science graduate seminars (SOIL SCI 728 Graduate Seminar) for letter grade (>B) during their Ph.D. program. One of the seminars must be on the student's prospectus. Each candidate must enroll in a soil science seminar every fall and spring semester; exceptions require the approval of the department chair.

Teaching qualifications: All candidates for a Ph.D. in Soil Science shall complete a minimum of 1 degree credit of SOIL SCI 799 Practicum in Soil Science Teaching. A written plan for satisfying this requirement shall be prepared by the student in conjunction with the advisor and approved by the certification committee. The type and level of effort required to earn one or more degree credits in SOIL SCI 799 shall be in accordance with the guidelines and standards set forth by the CALS Curriculum Committee and approved by the UW-Madison Divisional Committees in the spring semester 1981.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Ph.D. candidates in soil science must supplement their major study with a minimum of 10 credits in graduate courses in another field. These courses must be selected according to a coherent plan under Option A or Option B as follows:

Option A—External: A student must offer at least 10 credits from a degree program outside the soil science major. Selection of this option requires approval of the minor department.

Option B—Distributed: A distributed minor for a student studying for a Ph.D. in soil science shall consist of a minimum of 10 credits of graduate level courses in one or more departments. Selection of this option requires approval of the certification committee.

A minor program must be approved by the minor department (Option A) or by the Department of Soil Science Certification Committee (Option B) no later than the end of the second semester of Ph.D. graduate work (not including summer sessions). A copy of the completed minor agreement form is needed to obtain the warrant for the preliminary exam.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

Required courses in soil science must be completed with a grade of B or better (BC and C may not be offset by AB and A). For all other courses,

the requirement is an average record of B or better in all work taken as a graduate student.

## PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

## ADVISOR / COMMITTEE

The doctoral committee is a committee of five or more faculty members chosen by the major professor and the student, subject to approval by the certification committee. A minimum of three must be drawn from the soil science faculty. Representation of the minor department (see *graduate minor requirements*, below) is at the option of the minor department, but the Department of Soil Science recommends that the minor professor be on the committee.

It is the responsibility of the student and the major professor to form a doctoral committee and schedule a meeting before the end of the second semester (not including summer sessions) of Ph.D. graduate work. The doctoral committee will prepare a draft "degree clock" for the student specifying all significant Ph.D. milestones (certification of Ph.D. coursework, approval of minor, presentation of prospectus, preliminary examination, and final examination) during their initial meeting.

A student who does not meet deadline requirements in the departmental Ph.D. requirements document will not be allowed to register in the subsequent semester until a written plan for meeting the requirements has been approved by the major advisor and the department certification committee.

A proposed program for a Ph.D. candidate satisfying the minimum course requirements must be approved by the certification committee before the end of the first semester of Ph.D. graduate work.

## ASSESSMENTS AND EXAMINATIONS

Candidates must complete the Ph.D. prospectus, which consists of the prospectus seminar and the written prospectus.

Candidates are required to take a preliminary examination.

Candidates for the Ph.D. degree are subject to a final oral examination on their dissertation and the general fields of the major and minor studies. Candidates must present an open seminar on their Ph.D. research findings, followed by oral defense of the dissertation in front of the doctoral committee.

Deposit of the doctoral dissertation is required.

## TIME CONSTRAINTS

Prospectus: The written prospectus and the prospectus seminar must be completed by the end of the third semester (not including summer sessions).

Preliminary exam: Students who obtain their M.S. degree in the department and who continue in the department for their doctorate must take the preliminary examination by the end of the fourth semester (not including summer sessions) of Ph.D. graduate work. Candidates who are approved to retake a failed examination must have passed by the end of the fifth semester.

Candidates for the Ph.D. degree who obtained an M.S. or M.A. degree elsewhere, must take the Preliminary Examination by the end of the fourth semester (not including summer sessions) of Ph.D. graduate work. Candidates who are approved to retake a failed examination must have passed by the end of the fifth semester.

Candidates who do not adhere to this deadline must show justification for the delay to the department certification committee.

Final oral exam and deposit of dissertation: A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

A foundation in the basic sciences is essential for graduate study in soil science. The program requires all students to have successfully completed one semester of calculus for the M.S. degree and two semesters of calculus (differential and integral) for the Ph.D., one course in statistics, nine credits of chemistry, and one year of physics. Admission with deficiencies is possible but is likely to delay completion of graduate studies.

The following materials must be submitted when applying to the program: an online application, official transcripts, Graduate Record Exam (GRE) scores, and three references. TOEFL scores are required for applicants whose native language is not English. Because graduate requirements presuppose extensive science coursework, continuing undergraduate students are encouraged to select undergraduate courses carefully if they are considering advanced degrees in soil science.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory and practice in soil science.
- Formulates ideas, concepts, designs, and/or techniques beyond the boundaries of soil science knowledge.
- Articulates testable hypotheses and conducts research that makes a substantive contribution to soil science.
- Communicates clearly in ways appropriate to the field, in oral and written forms, for scholarly and general public audiences.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct, adhering to accepted standards such as that of the Soil Science Society of America.

## PEOPLE

**Faculty:** Professors Hartemink (chair), Barak, Bland, Bleam, Hickey, Kung, Laboski, Long, Pedersen, Powell, Ventura; Associate Professors Balster, Ruark, Soldat; Assistant Professors Arriaga, Whitman

# SPANISH AND PORTUGUESE

**Administrative Unit:** Spanish and Portuguese

**College/School:** College of Letters & Science

**Admitting Plans:** M.A., Ph.D.

**Degrees Offered:** M.A. in Portuguese; M.A. in Spanish; Ph.D. in Portuguese; Ph.D. in Spanish

**Minors and Certificates:** Doctoral Minor in Portuguese; Doctoral Minor in Portuguese

## PORTUGUESE

The degrees offered are the master of arts in Portuguese and the doctor of philosophy with a major in Portuguese. In addition, the department offers a doctoral minor in Spanish or Portuguese, consisting of 12 credits of graduate study.

An integrated curriculum in Portuguese languages, literatures, and linguistics provides training at the master's and Ph.D. levels and assures that graduates are prepared to contribute as professionals in the fields of teaching and research. An active program of research contributes to new knowledge in Spanish and Portuguese. A comprehensive group of courses is offered in rotation during the academic year so that candidates may take courses in all fields. Classes are conducted in Portuguese.

The department's graduate program in Portuguese is consistently among the finest in the country. Twenty to twenty-five teaching assistantships are offered each year to graduate candidates in Spanish and Portuguese. A full complement of courses in Portuguese, Brazilian, and Luso-African literatures, culture, and linguistics is offered on a regular basis.

Fellowships, scholarships, teaching assistantships, and project assistantships are available to qualified graduate degree candidates.

Students pursuing advanced degrees in this department are advised to include in their training work in other languages and literatures, art, social sciences, linguistics, film studies, and philosophy. A knowledge of other languages is strongly recommended for advanced work in Hispanic and Luso-Brazilian fields.

## SPANISH

The degrees offered are the master of arts and doctor of philosophy in Spanish. In addition, the department offers a doctoral minor in Spanish or Portuguese, consisting of 12 credits of graduate study.

An integrated curriculum in Spanish language, literatures, cultures, and linguistics provides training at the master's and Ph.D. levels and assures that graduates are prepared to contribute as professionals in the fields of teaching and research. An active program of research contributes to new knowledge in Spanish. A comprehensive group of courses is offered in rotation during the academic year so that candidates may take courses in all fields. Classes are conducted in Spanish.

The department's graduate program in Spanish is consistently among the finest in the country. Teaching assistantships are offered each year to graduate candidates in Spanish and Portuguese. A full complement of courses in Spanish and Spanish American, literatures, cultures, and linguistics is offered on a regular basis.

Fellowships, scholarships, teaching assistantships, and project assistantships are available to qualified graduate degree candidates.

Students pursuing advanced degrees in this department are advised to include in their training work in other languages and literatures, art, social sciences, linguistics, film studies, and philosophy. Knowledge of other languages is required for advanced work in Hispanic and Luso-Brazilian fields.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Portuguese, Doctoral Minor (p. 699)
- Portuguese, M.A. (p. 700)
- Portuguese, Ph.D. (p. 701)
- Spanish, Doctoral Minor (p. 703)
- Spanish, M.A. (p. 704)
- Spanish, Ph.D. (p. 705)

## PEOPLE

**Spanish Faculty:** Professors Beilin (modern Spanish literature), Bilbija (modern Spanish American literature), Close (modern Spanish American/trans-Atlantic literature), Corfis (medieval Spanish literature), De Ferrari (modern Spanish American literature), Egea (modern Spanish literature), Frantzen (second language acquisition and linguistics), Hildner (Golden Age literature), Hutchinson (Golden Age literature), Medina (modern Spanish American literature), Podestá (colonial Spanish American literature); Associate Professors Alcalá-Galán (Golden Age literature), Ancos-García (medieval Spanish literature), Goldgel-Carballo (colonial Spanish American literature), Hernández (modern Spanish American literature), Pellegrini (modern Spanish American literature), Rao (Spanish linguistics), Stafford (second language acquisition and linguistics), Tejedo-Herrero (Spanish linguistics); Assistant Professors Armstrong (Spanish linguistics), Cerezo Paredes (modern Spanish literature), Comparone (modern Spanish literature)

**Portuguese Faculty:** Professors Albuquerque (Brazilian literature and culture), Madureira (Portuguese, Brazilian, and Luso-African literature and culture), Sapega (Portuguese and Luso-African literature and culture); and Sanchez (Portuguese and Brazilian literature and culture)

## PORTUGUESE, DOCTORAL MINOR

Candidates for a doctoral minor in Portuguese should have the equivalent of at least three years of undergraduate preparation in the Hispanic or Luso-Brazilian field, preferably including a year of introductory survey of literatures.

## PEOPLE

**Spanish Faculty:** Professors Beilin (modern Spanish literature), Bilbija (modern Spanish American literature), Close (modern Spanish American/trans-Atlantic literature), Corfis (medieval Spanish literature), De Ferrari (modern Spanish American literature), Egea (modern Spanish literature), Frantzen (second language acquisition and linguistics), Hildner (Golden Age literature), Hutchinson (Golden Age literature), Medina (modern Spanish American literature), Podestá (colonial Spanish American

literature); Associate Professors Alcalá-Galán (Golden Age literature), Ancos-García (medieval Spanish literature), Goldgel-Carballo (colonial Spanish American literature), Hernández (modern Spanish American literature), Pellegrini (modern Spanish American literature), Rao (Spanish linguistics), Stafford (second language acquisition and linguistics), Tejedo-Herrero (Spanish linguistics); Assistant Professors Armstrong (Spanish linguistics), Cerezo Paredes (modern Spanish literature), Comparone (modern Spanish literature)

**Portuguese Faculty:** Professors Albuquerque (Brazilian literature and culture), Madureira (Portuguese, Brazilian, and Luso-African literature and culture), Sapega (Portuguese and Luso-African literature and culture); and Sanchez (Portuguese and Brazilian literature and culture)

## PORTUGUESE, M.A.

The degrees offered are the master of arts in Portuguese and the doctor of philosophy with a major in Portuguese. In addition, the department offers a doctoral minor in Spanish or Portuguese, consisting of 12 credits of graduate study.

An integrated curriculum in Portuguese languages, literatures, and linguistics provides training at the master's and Ph.D. levels and assures that graduates are prepared to contribute as professionals in the fields of teaching and research. An active program of research contributes to new knowledge in Spanish and Portuguese. A comprehensive group of courses is offered in rotation during the academic year so that candidates may take courses in all fields. Classes are conducted in Portuguese.

The department's graduate program in Portuguese is consistently among the finest in the country. Twenty to twenty-five teaching assistantships are offered each year to graduate candidates in Spanish and Portuguese. A full complement of courses in Portuguese, Brazilian, and Luso-African literatures, culture, and linguistics is offered on a regular basis.

Fellowships, scholarships, teaching assistantships, and project assistantships are available to qualified graduate degree candidates.

Students pursuing advanced degrees in this department are advised to include in their training work in other languages and literatures, art, social sciences, linguistics, film studies, and philosophy. A knowledge of other languages is strongly recommended for advanced work in Hispanic and Luso-Brazilian fields.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

31 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

25 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

It is rare for student not to take 100% of their credits in graduate coursework. At least half of the required coursework must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from undergraduate courses from a UW-Madison undergraduate degree are allowed to count toward the degree, but students who have taken graduate level courses are allowed to petition with their advisor's consent up to a maximum of 7 credits.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

One-credit proseminar (PORTUG 707 Portuguese M.A. Proseminar); 15 credits in the form of five 3-credit core courses taken among the following:

Code	Title	Credits
PORTUG 411	Survey of Portuguese Literature before 1825	3
PORTUG 412	Survey of Brazilian Literature before 1890	3
PORTUG 467	Survey of Portuguese Literature since 1825	3
PORTUG 468	Survey of Brazilian Literature since 1890	3
PORTUG/AFRICAN 451	Lusophone African Literature	3
PORTUG 361	Portuguese Civilization	3
PORTUG 362	Brazilian Civilization	3
PORTUG 330	History of the Portuguese Language	3

Fifteen credits of electives are required. Six of these elective credits must be taken as seminars. PORTUG 899 Independent Reading may only satisfy elective credits. Students are strongly advised not to

take a seminar in an area in which they have no previous preparation. Exceptions by consent of instructor.

All graduate students who are candidates for an M.A. degree in this department must take a minimum of two graduate-level courses in Spanish and/or Portuguese for credit each semester, exclusive of Independent Reading courses and audited courses.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

No other grade requirements.

## PROBATION POLICY

Satisfactory progress depends on: maintaining a GPA of at least 3.0, adhering to the rule whereby students must take two courses within the department (or have the rule waived by petition), and fulfilling all academic requirements. Students who are not in good standing will not be given sections to teach as TAs, and those whose GPA goes below 3.0 are put on academic probation. If a semester of 3.0 is not attained during the subsequent semester, the student may be dismissed from the program.

## ADVISOR / COMMITTEE

All students have a substantial meeting with their advisers every semester to review their progress and work out the best strategies for future coursework and degree progress.

## ASSESSMENTS AND EXAMINATION

An M.A./Ph.D. examination is required.

## TIME CONSTRAINTS

The M.A./Ph.D. qualifying exam is taken in the fourth or fifth semester of the M.A. program, very rarely beyond that.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements beyond English and Portuguese.

## ADMISSIONS

Admission to candidacy for the master's degree presupposes an undergraduate major in Spanish or Portuguese at UW–Madison or its equivalent. Candidates entering with a B.A. in Spanish or Portuguese must have an undergraduate GPA of at least 3.0 (on a 4.0 scale), and a GPA in Spanish or Portuguese courses of at least 3.25.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, and elaborates the theories, methods, terminology and approaches to inquiry in Luso-Brazilian literary studies.

- Identifies and pursues promising avenues of inquiry, finds and makes use of appropriate bibliography, analyzes literary or other cultural works, and develops speaking and writing skills.
- Demonstrates knowledge and understanding of Luso-Brazilian literatures in a historical, sociocultural and global context.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates fluently and clearly in Portuguese in ways appropriate to the field of study.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Spanish Faculty:** Professors Beilin (modern Spanish literature), Bilbija (modern Spanish American literature), Close (modern Spanish American/trans-Atlantic literature), Corfis (medieval Spanish literature), De Ferrari (modern Spanish American literature), Egea (modern Spanish literature), Frantzen (second language acquisition and linguistics), Hildner (Golden Age literature), Hutchinson (Golden Age literature), Medina (modern Spanish American literature), Podestá (colonial Spanish American literature); Associate Professors Alcalá-Galán (Golden Age literature), Ancos-García (medieval Spanish literature), Goldgel-Carballo (colonial Spanish American literature), Hernández (modern Spanish American literature), Pellegrini (modern Spanish American literature), Rao (Spanish linguistics), Stafford (second language acquisition and linguistics), Tejedo-Herrero (Spanish linguistics); Assistant Professors Armstrong (Spanish linguistics), Cerezo Paredes (modern Spanish literature), Comparone (modern Spanish literature)

**Portuguese Faculty:** Professors Albuquerque (Brazilian literature and culture), Madureira (Portuguese, Brazilian, and Luso-African literature and culture), Sapega (Portuguese and Luso-African literature and culture); and Sanchez (Portuguese and Brazilian literature and culture)

## PORTUGUESE, PH.D.

The degrees offered are the master of arts in Portuguese and the doctor of philosophy with a major in Portuguese. In addition, the department offers a doctoral minor in Spanish or Portuguese, consisting of 12 credits of graduate study.

An integrated curriculum in Portuguese languages, literatures, and linguistics provides training at the master's and Ph.D. levels and assures that graduates are prepared to contribute as professionals in the fields of teaching and research. An active program of research contributes to new knowledge in Spanish and Portuguese. A comprehensive group of courses is offered in rotation during the academic year so that candidates may take courses in all fields. Classes are conducted in Portuguese.

The department's graduate program in Portuguese is consistently among the finest in the country. Twenty to twenty-five teaching assistantships are offered each year to graduate candidates in Spanish and Portuguese. A full complement of courses in Portuguese, Brazilian, and Luso-African literatures, culture, and linguistics is offered on a regular basis.

Fellowships, scholarships, teaching assistantships, and project assistantships are available to qualified graduate degree candidates.

Students pursuing advanced degrees in this department are advised to include in their training work in other languages and literatures, art, social sciences, linguistics, film studies, and philosophy. A knowledge of other languages is strongly recommended for advanced work in Hispanic and Luso-Brazilian fields.

## FUNDING

Prospective students should see the program website for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D.

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

54 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

In practice all doctoral coursework (with the exception of some language requirements or some doctoral minors) is designed exclusively for graduate students. At least half of the required coursework must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from undergraduate courses from a UW–Madison undergraduate degree are allowed to count toward the degree, but students who have taken graduate level courses are allowed to petition with their advisor's consent up to a maximum of 7 credits.

### PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

The minimum requirements are: nine credits in the major and six in each of the two supporting fields. Course credits earned in the M.A. program, with the exception of PORTUG 311 Fourth Year Composition and Conversation–PORTUG 312 Fourth Year Composition and Conversation, PORTUG 330 History of the Portuguese Language, PORTUG 361 Portuguese Civilization–PORTUG 362 Brazilian Civilization, PORTUG 707 Portuguese M.A. Proseminar (the proseminar), and any transfer credits used to satisfy M.A. requirements, do satisfy the Ph.D. course requirements. A maximum of 3 credits of independent study (PORTUG 899 Independent Reading) in each of the areas of concentration may be used, with prior departmental approval, when corresponding courses are not offered in a timely fashion.

A minimum of six advanced courses (at least two must be seminars in the major) are required. At least four advanced courses are required beyond the M.A. One of these advanced courses may be taken outside the Portuguese program or transferred from another institution, with the adviser's consent. The proseminar is for M.A. students only and does not count for doctoral credit.

Three credits of graduate coursework is the minimum requirement in literary theory.

A minimum of 18 credits must be taken as graduate seminars.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

The doctoral candidate must present a minor in work done outside of Portuguese. The minor should be in an area related to the major field of interest. Requirements for the minor are established by the respective department. For a minor in Spanish, students should have a minimum of 12 credits at the 500 level or above. 3 of these credits must be taken as a seminar and 3, in consultation with the minor advisor, may also be taken as independent study.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

### OTHER GRADE REQUIREMENTS

No other grade requirements.

### PROBATION POLICY

Satisfactory progress depends on: maintaining a GPA of at least 3.0, adhering to the rule whereby students must take two courses within the department (or have the rule waived by petition), and fulfilling all academic requirements. Students who are not in good standing will not be given sections to teach as TAs, and those whose GPA goes below 3.0 are put on academic probation. If a semester of 3.0 is not attained during the subsequent semester, the student may be dismissed from the program.

## ADVISOR / COMMITTEE

All students have a substantial meeting with their advisers every semester to review their progress and work out the best strategies for future coursework and degree progress.

## ASSESSMENTS AND EXAMINATIONS

All Ph.D. candidates are required to take written and oral Ph.D. preliminary examinations (four written exams, one oral).

## TIME CONSTRAINTS

Students are required to finish their doctoral dissertation within five years of the time they pass their Ph.D. preliminary examinations, unless they receive an extension.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

Ph.D. students are required to demonstrate advanced proficiency—via specified sequences of language courses or via exam—in two languages other than Portuguese and English. These languages are generally selected from among the other Romance languages, Latin, Arabic and German, but may also include such languages as Turkish, Catalan, Galician, Maya, Nahuatl, Quichua, etc. Advanced proficiency is defined as six college semesters with a grade of B or better.

## ADMISSIONS

Admission to candidacy for the master's degree presupposes an undergraduate major in Spanish or Portuguese at UW–Madison or its equivalent. Candidates entering with a B.A. in Spanish or Portuguese must have an undergraduate GPA of at least 3.0 (on a 4.0 scale), and a GPA in Spanish or Portuguese courses of at least 3.25.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of Luso-Brazilian literary/cultural studies, with a view to interdisciplinarity.
- Formulates ideas, concepts, and theoretical approaches beyond the current boundaries of knowledge and practice within Luso-Brazilian literary/cultural studies.
- Develops archival and/or bibliographic research skills or other evidence-gathering techniques with the aim of furthering historical and cultural knowledge of the specific field of inquiry.
- Produces scholarship that makes a substantive contribution to Luso-Brazilian literary/cultural studies.
- Demonstrates breadth within learning experiences.
- Advances contributions of the field of study to society.

### PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## ADDITIONAL LEARNING GOALS

- Communicates complex ideas in both Portuguese and English in a clear and understandable manner, and demonstrates reading knowledge of two other languages pertinent to the field of inquiry.
- Develops speaking and writing skills necessary for articulating cogent and original arguments that enter into conversation with new and existing critical paradigms in literary and cultural studies.

## PEOPLE

**Spanish Faculty:** Professors Beilin (modern Spanish literature), Bilbija (modern Spanish American literature), Close (modern Spanish American/trans-Atlantic literature), Corfis (medieval Spanish literature), De Ferrari (modern Spanish American literature), Egea (modern Spanish literature), Frantzen (second language acquisition and linguistics), Hildner (Golden Age literature), Hutchinson (Golden Age literature), Medina (modern Spanish American literature), Podestá (colonial Spanish American literature); Associate Professors Alcalá-Galán (Golden Age literature), Ancos-García (medieval Spanish literature), Goldgel-Carballo (colonial Spanish American literature), Hernández (modern Spanish American literature), Pellegrini (modern Spanish American literature), Rao (Spanish linguistics), Stafford (second language acquisition and linguistics), Tejedo-Herrero (Spanish linguistics); Assistant Professors Armstrong (Spanish linguistics), Cerezo Paredes (modern Spanish literature), Comparone (modern Spanish literature)

**Portuguese Faculty:** Professors Albuquerque (Brazilian literature and culture), Madureira (Portuguese, Brazilian, and Luso-African literature and culture), Sapega (Portuguese and Luso-African literature and culture); and Sanchez (Portuguese and Brazilian literature and culture)

## SPANISH, DOCTORAL MINOR

### REQUIREMENTS

Candidates for a doctoral minor in Spanish should have the equivalent of at least three years of undergraduate preparation in the Hispanic or Luso-Brazilian field, preferably including a year of introductory survey of literatures.

## PEOPLE

**Spanish Faculty:** Professors Beilin (modern Spanish literature), Bilbija (modern Spanish American literature), Close (modern Spanish American/trans-Atlantic literature), Corfis (medieval Spanish literature), De Ferrari (modern Spanish American literature), Egea (modern Spanish literature), Frantzen (second language acquisition and linguistics), Hildner (Golden Age literature), Hutchinson (Golden Age literature), Medina (modern Spanish American literature), Podestá (colonial Spanish American literature); Associate Professors Alcalá-Galán (Golden Age literature), Ancos-García (medieval Spanish literature), Goldgel-Carballo (colonial Spanish American literature), Hernández (modern Spanish American literature), Pellegrini (modern Spanish American literature), Rao (Spanish linguistics), Stafford (second language acquisition and linguistics), Tejedo-Herrero (Spanish linguistics); Assistant Professors Armstrong

(Spanish linguistics), Cerezo Paredes (modern Spanish literature), Comparone (modern Spanish literature)

**Portuguese Faculty:** Professors Albuquerque (Brazilian literature and culture), Madureira (Portuguese, Brazilian, and Luso-African literature and culture), Sapega (Portuguese and Luso-African literature and culture); and Sanchez (Portuguese and Brazilian literature and culture)

## SPANISH, M.A.

The degrees offered are the master of arts and doctor of philosophy in Spanish. In addition, the department offers a doctoral minor in Spanish or Portuguese, consisting of 12 credits of graduate study.

An integrated curriculum in Spanish language, literatures, cultures, and linguistics provides training at the master's and Ph.D. levels and assures that graduates are prepared to contribute as professionals in the fields of teaching and research. An active program of research contributes to new knowledge in Spanish. A comprehensive group of courses is offered in rotation during the academic year so that candidates may take courses in all fields. Classes are conducted in Spanish.

The department's graduate program in Spanish is consistently among the finest in the country. Teaching assistantships are offered each year to graduate candidates in Spanish and Portuguese. A full complement of courses in Spanish and Spanish American, literatures, cultures, and linguistics is offered on a regular basis.

Fellowships, scholarships, teaching assistantships, and project assistantships are available to qualified graduate degree candidates.

Students pursuing advanced degrees in this department are advised to include in their training work in other languages and literatures, art, social sciences, linguistics, film studies, and philosophy. Knowledge of other languages is required for advanced work in Hispanic and Luso-Brazilian fields.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### MASTER'S DEGREES

M.A., with available tracks in literature, and linguistics

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Students are required to take a minimum of 18 credits of graduate coursework. In practice it is rare for students not to take 100% of

their credits in graduate coursework. Courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

No credits from undergraduate courses from a UW-Madison undergraduate degree are allowed to count toward the degree, but students who have taken graduate level courses are allowed to petition with their advisor's consent up to a maximum of 7 credits.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW-Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

M.A. with concentration in literature: Candidates take one course in each of five of the seven areas; one of the five must be a linguistics course (either descriptive or applied). Students with a concentration in literature will be examined on the M.A.–Ph.D. qualifying exam in any area of literature in which they do not take a course. A further 15 credits are electives which may be taken in any of the areas—i.e., program-specific courses, with the advisor's consent. Advisor's consent is also required for taking any course that is not program-specific.

M.A. with concentration in linguistics: one course in descriptive linguistics, one course in applied linguistics, and two further courses in linguistics which may be descriptive or applied, or a combination. One course each must be taken from two of the five literary areas. With the advisor's consent, the remaining twelve credits may be taken in any area, or in literary theory; up to six of these fifteen credits may also be taken in the study of another language. Students intending to continue on to the Ph.D. program are encouraged to take courses that will fulfill Ph.D. requirements.

### OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

### OTHER GRADE REQUIREMENTS

No other grade requirements.

### PROBATION POLICY

Satisfactory progress depends on: maintaining a GPA of at least 3.0, adhering to the rule whereby students must take two courses within the department (or have the rule waived by petition), and fulfilling all academic requirements. Students who are not in good standing will not be given sections to teach as TAs, and those whose GPA goes below 3.0 are put on academic probation. If a semester of 3.0 is not attained



during the subsequent semester, the student may be dismissed from the program.

## ADVISOR / COMMITTEE

All students have a substantial meeting with their advisors every semester to review their progress and work out the best strategies for future coursework and degree progress.

## ASSESSMENTS AND EXAMINATION

An M.A./Ph.D. examination is required.

## TIME CONSTRAINTS

The M.A./Ph.D. qualifying exam is taken in the fourth or fifth semester of the M.A. program, very rarely beyond that.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements beyond English and Spanish.

## ADMISSIONS

Admission to candidacy for the master's degree presupposes an undergraduate major in Spanish at UW–Madison or its equivalent. Candidates entering with a B.A. in Spanish must have an undergraduate GPA of at least 3.0 (on a 4.0 scale), and a GPA in Spanish courses of at least 3.25.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates, critiques, and elaborates the theories, methods, terminology and approaches to inquiry in Hispanic literary studies and/or Spanish linguistics.
- Identifies and pursues promising avenues of inquiry, finds and makes use of appropriate bibliography, analyzes literary/cultural works or linguistic evidence, and develops speaking and writing skills.
- Demonstrates knowledge and understanding of Hispanic literatures and/or Spanish linguistics in a historical, sociocultural and global context.
- Evaluates or synthesizes information pertaining to questions or challenges in the field of study.
- Communicates fluently and clearly in Spanish in ways appropriate to the field of study.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Spanish Faculty:** Professors Beilin (modern Spanish literature), Bilbija (modern Spanish American literature), Close (modern Spanish American/trans-Atlantic literature), Corfis (medieval Spanish literature), De Ferrari

(modern Spanish American literature), Egea (modern Spanish literature), Frantzen (second language acquisition and linguistics), Hildner (Golden Age literature), Hutchinson (Golden Age literature), Medina (modern Spanish American literature), Podestá (colonial Spanish American literature); Associate Professors Alcalá-Galán (Golden Age literature), Ancos-García (medieval Spanish literature), Goldgel-Carballo (colonial Spanish American literature), Hernández (modern Spanish American literature), Pellegrini (modern Spanish American literature), Rao (Spanish linguistics), Stafford (second language acquisition and linguistics), Tejedo-Herrero (Spanish linguistics); Assistant Professors Armstrong (Spanish linguistics), Cerezo Paredes (modern Spanish literature), Comparone (modern Spanish literature)

**Portuguese Faculty:** Professors Albuquerque (Brazilian literature and culture), Madureira (Portuguese, Brazilian, and Luso-African literature and culture), Sapega (Portuguese and Luso-African literature and culture); and Sanchez (Portuguese and Brazilian literature and culture)

## SPANISH, PH.D.

The degrees offered are the master of arts and doctor of philosophy in Spanish. In addition, the department offers a doctoral minor in Spanish or Portuguese, consisting of 12 credits of graduate study.

An integrated curriculum in Spanish language, literatures, cultures, and linguistics provides training at the master's and Ph.D. levels and assures that graduates are prepared to contribute as professionals in the fields of teaching and research. An active program of research contributes to new knowledge in Spanish. A comprehensive group of courses is offered in rotation during the academic year so that candidates may take courses in all fields. Classes are conducted in Spanish.

The department's graduate program in Spanish is consistently among the finest in the country. Teaching assistantships are offered each year to graduate candidates in Spanish and Portuguese. A full complement of courses in Spanish and Spanish American, literatures, cultures, and linguistics is offered on a regular basis.

Fellowships, scholarships, teaching assistantships, and project assistantships are available to qualified graduate degree candidates.

Students pursuing advanced degrees in this department are advised to include in their training work in other languages and literatures, art, social sciences, linguistics, film studies, and philosophy. Knowledge of other languages is required for advanced work in Hispanic and Luso-Brazilian fields.

## FUNDING

Prospective students should see the program website (<http://spanport.wisc.edu/graduate/funding>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

**DOCTORAL DEGREES**

Ph.D., with available tracks in literature, and linguistics

**MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT**

51 credits

**MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT**

32 credits

**MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT**

A minimum of 33 credits out of 51 total must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

In practice all doctoral coursework (with the exception of some language requirements or some doctoral minors) is designed exclusively for graduate students.

**PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**

No credits from undergraduate courses from a UW–Madison undergraduate degree are allowed to count toward the degree, but students who have taken graduate level courses are allowed to petition with their advisor's consent up to a maximum of 7 credits.

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

With program approval, students are allowed to count no more than 6 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

**CREDITS PER TERM ALLOWED**

15 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

Yes. Doctoral candidates in both Hispanic literature must take 12 graduate credits in their major field (including 6 credits of seminars), 6 credits in each of two supporting fields, and 3 credits in each of the two remaining fields. They must also take a literary theory courses, which usually means one of the two offered in the program.

For the Ph.D. in Spanish linguistics, The minimum requirements are: 12 credits in the major and 6 in each supporting field. SPANISH/FRENCH/ITALIAN/PORTUG 817 Romance Philology or SPANISH/FRENCH/ITALIAN/PORTUG 429 Introduction to the Romance Languages may satisfy course requirements in any of the three areas of concentration. A maximum of 3 credits of SPANISH 899 Independent Reading in each of the areas of concentration may be used, with prior departmental approval, when corresponding courses are not offered in a timely fashion.

In addition, majors in Peninsular Spanish must take 6 credits in medieval literature and 3 in Golden Age literature; majors in American Spanish must take 6 credits in Colonial Spanish American literature and 3 in medieval literature; majors in applied Spanish linguistics must take 3 credits in Modern Peninsular literature, 3 in Modern Spanish American literature, and 3 in Peninsular or Spanish American literature. Course credits earned in the M.A. program, with the exception of SPANISH 545 College Teaching of Spanish, SPANISH 323 Advanced Language Practice with Emphasis on Expository Writing, and any transfer credits used to satisfy M.A. requirements, do satisfy the Ph.D. course requirements.

**DOCTORAL MINOR/BREADTH REQUIREMENTS**

Doctoral students are required to complete a doctoral minor.

**OVERALL GRADUATE GPA REQUIREMENT**

3.00 GPA required

**OTHER GRADE REQUIREMENTS**

No other grade requirements.

**PROBATION POLICY**

Satisfactory progress depends on: maintaining a GPA of at least 3.0, adhering to the rule whereby students must take two courses within the department (or have the rule waived by petition), and fulfilling all academic requirements. Students who are not in good standing will not be given sections to teach as TAs, and those whose GPA goes below 3.0 are put on academic probation. If a semester of 3.0 is not attained during the subsequent semester, the student may be dismissed from the program.

**ADVISOR / COMMITTEE**

All students have a substantial meeting with their advisors every semester to review their progress and work out the best strategies for future coursework and degree progress.

**ASSESSMENTS AND EXAMINATIONS**

All Ph.D. candidates are required to take written and oral Ph.D. preliminary examinations (four written exams, one oral).

**TIME CONSTRAINTS**

Students are required to finish their doctoral dissertation within five years of the time they pass their Ph.D. preliminary examinations, unless they receive an extension.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

**LANGUAGE REQUIREMENTS**

Ph.D. students are required to demonstrate advanced proficiency—via specified sequences of language courses or via exam—in two languages other than Spanish and English. These languages are generally selected from among the other Romance languages, Latin, Arabic and German, but may also include such languages as Turkish, Catalan, Galician, Maya, Nahuatl, Quichua, etc. Advanced proficiency is defined as six college semesters with a grade of B or better.

## ADMISSIONS

Admission to candidacy for the master's degree presupposes an undergraduate major in Spanish at UW–Madison or its equivalent. Candidates entering with a B.A. in Spanish must have an undergraduate GPA of at least 3.0 (on a 4.0 scale), and a GPA in Spanish courses of at least 3.25.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- [Literature] Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of Hispanic literary/cultural studies, with a view to interdisciplinarity.
- [Linguistics] Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of Spanish linguistics, with a view to interdisciplinarity.
- [Literature] Formulates ideas, concepts, and theoretical approaches beyond the current boundaries of knowledge and practice within Hispanic literary/cultural studies.
- [Linguistics] Formulates ideas, concepts, and theoretical approaches beyond the current boundaries of knowledge and practice within Spanish linguistics.
- [Literature] Develops archival and/or bibliographic research skills or other evidence-gathering techniques with the aim of furthering historical and cultural knowledge of the specific field of inquiry.
- [Linguistics] Develops archival and/or bibliographic research skills or other evidence-gathering techniques with the aim of furthering knowledge of the specific field of inquiry.
- [Literature] Produces scholarship that makes a substantive contribution to Hispanic literary/cultural studies.
- [Linguistics] Produces scholarship that makes a substantive contribution to Spanish linguistics.
- [Literature] Demonstrates breadth within learning experiences.
- [Linguistics] Demonstrates breadth within learning experiences.
- [Literature] Advances contributions of the field of study to society.
- [Linguistics] Advances contributions of the field of study to society.

### PROFESSIONAL CONDUCT

- [Literature and Linguistics] Fosters ethical and professional conduct.

### ADDITIONAL LEARNING GOALS

- [Literature] Communicates complex ideas in both Spanish and English in a clear and understandable manner, and demonstrates reading knowledge of two other languages pertinent to the field of inquiry.
- [Linguistics] Communicates complex ideas in both Spanish and English in a clear and understandable manner, and demonstrates reading knowledge of two other languages pertinent to the field of inquiry.
- [Literature] Develops speaking and writing skills necessary for articulating cogent and original arguments that enter into conversation with new and existing critical paradigms in literary and cultural studies.

- [Linguistics] Develops speaking and writing skills necessary for articulating cogent and original arguments that enter into conversation with new and existing critical paradigms in linguistics.

## PEOPLE

**Spanish Faculty:** Professors Beilin (modern Spanish literature), Bilbija (modern Spanish American literature), Close (modern Spanish American/trans-Atlantic literature), Corfis (medieval Spanish literature), De Ferrari (modern Spanish American literature), Egea (modern Spanish literature), Frantzen (second language acquisition and linguistics), Hildner (Golden Age literature), Hutchinson (Golden Age literature), Medina (modern Spanish American literature), Podestá (colonial Spanish American literature); Associate Professors Alcalá-Galán (Golden Age literature), Ancos-García (medieval Spanish literature), Goldgel-Carballo (colonial Spanish American literature), Hernández (modern Spanish American literature), Pellegrini (modern Spanish American literature), Rao (Spanish linguistics), Stafford (second language acquisition and linguistics), Tejedo-Herrero (Spanish linguistics); Assistant Professors Armstrong (Spanish linguistics), Cerezo Paredes (modern Spanish literature), Comparone (modern Spanish literature)

**Portuguese Faculty:** Professors Albuquerque (Brazilian literature and culture), Madureira (Portuguese, Brazilian, and Luso-African literature and culture), Sapega (Portuguese and Luso-African literature and culture); and Sanchez (Portuguese and Brazilian literature and culture)

# STATISTICS

**Administrative Unit:** Statistics

**College/School:** College of Letters & Science

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Named Options:** Data Science (M.S.); Biostatistics (M.S./Ph.D.)

The Department of Statistics offers a rich variety of courses and seminars in almost all branches of statistical theory and applications. The department offers the master of science (M.S.) and the doctor of philosophy in statistics (Ph.D), and M.S. and Ph.D. degrees in statistics with a named option in biostatistics. An M.S. in statistics with a named option in data science is also available to students meeting the criteria (see the data science (<http://www.stat.wisc.edu/ms-degree-data-science-option-ms-ds>) page for more details). In addition, the department is closely involved with the biometry program, and with the School of Medicine and Public Health's Department of Biostatistics and Medical Informatics, both listed separately in this catalog.

The statistics department provides extensive computing facilities, both hardware and software, to support instruction and research. Several computers and advanced graphic workstations are available for use in advanced courses enabling students to pursue the latest research directions in statistical computing and graphics. Common statistical packages and libraries are available on a variety of machines.

The department may be consulted for specific career information. A number of assistantships are available each year; see the department website (<http://www.stat.wisc.edu>) for application materials and deadlines. The master's degree programs are described below.

Additional information about the master's and Ph.D. programs, including time limits, can also be obtained from the department.

## DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Statistics, Doctoral Minor (p. 708)
- Statistics, M.S. (p. 710)
- Statistics, Ph.D. (p. 712)

## PEOPLE

**Faculty:** Professors Y. Wang (chair), Chappell, Clayton, Keles, Larget, Loh, Newton, Nordheim, Qian, Shao, Tsui, Wahba, Yandell, Yuan, C. Zhang, Z. Zhang, J. Zhu; Associate Professors Ane, S. Wang; Assistant Professors Hanlon, Raskutti, Rohe, A. Zhang

# STATISTICS, DOCTORAL MINOR

## REQUIREMENTS

### GENERAL REQUIREMENTS FOR AN OPTION-A MINOR IN STATISTICS FOR GRADUATES:

Please carefully read the requirements below. Requests for further information should be addressed to the faculty member acting as minor program advisor in the Department of Statistics. **Note:** Candidates for an Option A Minor in statistics must be aware of the Graduate School "Minors" policy (<https://grad.wisc.edu/acadpolicy/#minors>).

### STATISTICS MINOR OPTION FOR GRADUATES

For admission for an Option A Minor in statistics, the candidate must have had at least one year of calculus, and an introductory knowledge of statistics that is satisfactory to the department. Any of the following (or an equivalent course) is sufficient for this purpose:

Code	Title	Credits
STAT 224	Introductory Statistics for Engineers	3
STAT 301	Introduction to Statistical Methods	3
STAT 302	Accelerated Introduction to Statistical Methods	3
STAT 324	Introductory Applied Statistics for Engineers	3
STAT 371	Introductory Applied Statistics for the Life Sciences	3
STAT/F&W ECOL/ HORT 571	Statistical Methods for Bioscience I	4

Students must take at least four courses acceptable for the minor totaling at least 12 credits. Courses acceptable for the minor are:

Code	Title	Credits
STAT/MATH 309 & STAT/MATH 310	Introduction to Probability and Mathematical Statistics I and Introduction to Probability and Mathematical Statistics II	6
STAT/MATH 310	Introduction to Probability and Mathematical Statistics II	3
STAT 311 & STAT 312	Introduction to Theory and Methods of Mathematical Statistics I and Introduction to Theory and Methods of Mathematical Statistics II	6
STAT 312	Introduction to Theory and Methods of Mathematical Statistics II	3
STAT 327	Learning a Statistical Language	1
STAT 333	Applied Regression Analysis	3
STAT 349	Introduction to Time Series	3
STAT 351	Introductory Nonparametric Statistics	3
STAT 411	An Introduction to Sample Survey Theory and Methods	3

STAT 421	Applied Categorical Data Analysis	3
STAT/M E 424	Statistical Experimental Design	3
STAT 456	Applied Multivariate Analysis	3
STAT 461	Financial Statistics	3
STAT/COMP SCI 471	Introduction to Computational Statistics	3
STAT 479	Special Topics in Statistics	1-3
STAT/B M I 542	Introduction to Clinical Trials I	3
STAT/F&W ECOL/ HORT 572	Statistical Methods for Bioscience II	4
STAT 575	Statistical Methods for Spatial Data	3
STAT 609 & STAT 610	Mathematical Statistics I and Introduction to Statistical Inference	7
STAT 610	Introduction to Statistical Inference	4
STAT/B M I 641	Statistical Methods for Clinical Trials	3
STAT 679	Special Topics in Statistics	1-3
STAT/MATH 709	Mathematical Statistics	4
STAT/MATH 710	Mathematical Statistics	4
STAT 732	Large Sample Theory of Statistical Inference	3
STAT/B M I 741	Survival Analysis Theory and Methods	3
STAT 760	Multivariate Analysis I	3
STAT 761	Decision Trees for Multivariate Analysis	3
STAT 771	Statistical Computing	3
STAT/ECON/ GEN BUS 775	Introduction to Bayesian Decision and Control I	3
STAT/MATH 803	Experimental Design I	3
STAT 809	Non Parametric Statistics	3
STAT 811	Sample Survey Theory and Method	3
STAT 834	Empirical Processes and Semiparametric Inference	1-3
STAT 840	Statistical Model Building and Learning	3
STAT 841	Nonparametric Statistics and Machine Learning Methods	3
STAT 849	Theory and Application of Regression and Analysis of Variance I	3
STAT 850	Theory and Application of Regression and Analysis of Variance II	3
STAT 851	Generalized Linear Models	3
STAT 860	Estimation of Functions from Data	3
STAT/B M I 877	Statistical Methods for Molecular Biology	3
STAT 992	Seminar	1-3

A student can include at most one of 309, 609, and 709, and at most one of 310, 610, and 710. The courses taken by a particular student should depend on the student's major field or individual needs.

Besides these courses, up to three credits from the following list are acceptable for the minor (or some other course in the university of suitable statistical content **if approved** by the minor program advisor in the Department of Statistics):

Code	Title	Credits
MATH/STAT 431	Introduction to the Theory of Probability	3
MATH/COMP SCI/ STAT 475	Introduction to Combinatorics	3
MATH/I SY E/OTM/ STAT 632	Introduction to Stochastic Processes	3
MATH/STAT 833	Topics in the Theory of Probability	3
COMP SCI/I SY E/ MATH/STAT 525	Linear Programming Methods	3
COMP SCI/I SY E/ MATH/STAT 726	Nonlinear Optimization I	3

The student should have a program of study **approved** by the minor program advisor in the Department of Statistics and the student's major professor, **early in the student's graduate work**. The proposed program should be submitted to and approved by the minor program advisor in statistics **upon, or before, the completion of 6 credits**.

The student must achieve a 3.00 GPA in courses used to satisfy the minor requirement.

#### COURSES IN STATISTICS

Code	Title	Credits
<b>Courses in Statistics</b>		
<i>For majors in Mathematics &amp; Statistics:</i>		
STAT/MATH 309 & STAT/MATH 310	Introduction to Probability and Mathematical Statistics I and Introduction to Probability and Mathematical Statistics II	6
<i>For majors in Engineering, &amp; the Natural, Agricultural and Life Sciences:</i>		
STAT 311 & STAT 312	Introduction to Theory and Methods of Mathematical Statistics I and Introduction to Theory and Methods of Mathematical Statistics II	6
<i>For all majors:</i>		
STAT 327	Learning a Statistical Language	1
STAT 333	Applied Regression Analysis	3
STAT 349	Introduction to Time Series	3
STAT 351	Introductory Nonparametric Statistics	3
STAT 411	An Introduction to Sample Survey Theory and Methods	3
STAT 421	Applied Categorical Data Analysis	3
STAT/M E 424	Statistical Experimental Design	3
STAT 456	Applied Multivariate Analysis	3
STAT 461	Financial Statistics	3
STAT/COMP SCI 471	Introduction to Computational Statistics	3
STAT 479	Special Topics in Statistics	1-3

STAT/B M I 542	Introduction to Clinical Trials I	3
STAT/F&W ECOL/ HORT 572	Statistical Methods for Bioscience II	4
STAT 575	Statistical Methods for Spatial Data	3
STAT 609 & STAT 610	Mathematical Statistics I and Introduction to Statistical Inference (MS level)	7
STAT/B M I 641	Statistical Methods for Clinical Trials	3
STAT/B M I 642	Statistical Methods for Epidemiology	3
STAT 679	Special Topics in Statistics	1-3
STAT 701	Applied Time Series Analysis, Forecasting and Control I	3
STAT/MATH 709 & STAT/MATH 710	Mathematical Statistics and Mathematical Statistics (Ph.D. level)	8
STAT 732	Large Sample Theory of Statistical Inference	3
STAT/B M I 741	Survival Analysis Theory and Methods	3
STAT 760	Multivariate Analysis I	3
STAT 761	Decision Trees for Multivariate Analysis	3
STAT 771	Statistical Computing	3
STAT/ECON/ GEN BUS 775	Introduction to Bayesian Decision and Control I	3
STAT/MATH 803	Experimental Design I	3
STAT 809	Non Parametric Statistics	3
STAT 811	Sample Survey Theory and Method	3
STAT 834	Empirical Processes and Semiparametric Inference	1-3
STAT 840	Statistical Model Building and Learning	3
STAT 841	Nonparametric Statistics and Machine Learning Methods	3
STAT 849 & STAT 850	Theory and Application of Regression and Analysis of Variance I and Theory and Application of Regression and Analysis of Variance II	6
STAT 851	Generalized Linear Models	3
STAT 860	Estimation of Functions from Data	3
STAT/B M I 877	Statistical Methods for Molecular Biology	3
STAT 992	Seminar	1-3

#### Courses Jointly Listed in Statistics & Mathematics or Computer Science

MATH/STAT 431	Introduction to the Theory of Probability	3
MATH/COMP SCI/ STAT 475	Introduction to Combinatorics	3
MATH/I SY E/OTM/ STAT 632	Introduction to Stochastic Processes	3
STAT/MATH 733	Theory of Probability I	3

MATH/STAT 734	Theory of Probability II	3
MATH/STAT 833	Topics in the Theory of Probability	3
COMP SCI/I SY E/ MATH/STAT 525	Linear Programming Methods	3
COMP SCI/I SY E/ MATH/STAT 726	Nonlinear Optimization I	3

## PEOPLE

**Faculty:** Professors Y. Wang (chair), Chappell, Clayton, Keles, Larget, Loh, Newton, Nordheim, Qian, Shao, Tsui, Wahba, Yandell, Yuan, C. Zhang, Z. Zhang, J. Zhu; Associate Professors Ane, S. Wang; Assistant Professors Hanlon, Raskutti, Rohe, A. Zhang

## STATISTICS, M.S.

The M.S. degree program in statistics trains the candidate to become a practicing statistician. The objective of the M.S. degree in statistics with a named option in biostatistics is to train the candidate to contribute substantially to the statistical analysis of biomedical problems.

The Department of Statistics offers a rich variety of courses and seminars in almost all branches of statistical theory and applications. The department offers the master of science (M.S.) and the doctor of philosophy in statistics (Ph.D.), and M.S. and Ph.D. degrees in statistics with a named option in biostatistics. An M.S. in statistics with a named option in data science is also available to students meeting the criteria (see the data science (<http://www.stat.wisc.edu/ms-degree-data-science-option-ms-ds>) page for more details). In addition, the department is closely involved with the biometry program, and with the School of Medicine and Public Health's Department of Biostatistics and Medical Informatics, both listed separately in this catalog.

The statistics department provides extensive computing facilities, both hardware and software, to support instruction and research. Several computers and advanced graphic workstations are available for use in advanced courses enabling students to pursue the latest research directions in statistical computing and graphics. Common statistical packages and libraries are available on a variety of machines.

The department may be consulted for specific career information. A number of assistantships are available each year; see the department website (<http://www.stat.wisc.edu>) for application materials and deadlines. The master's degree programs are described below.

Additional information about the master's and Ph.D. programs, including time limits, can also be obtained from the department.

## FUNDING

Prospective students should see the program website (<http://www.stat.wisc.edu/financial-aid>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER'S DEGREES

M.S., with available named options in Biostatistics, and Data Science

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of the degree coursework (15 of 30 credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions toward the graduate degree credit and graduate coursework (50%) requirements. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, up to 6 statistics credits from a UW-Madison undergraduate degree at the 600 level or above are allowed to count toward minimum graduate degree credits. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, up to 15 statistics credits completed at UW-Madison while a University Special student at the 300 level or above are allowed to count toward minimum graduate degree and graduate residence credit requirements. Of these credits, those at the 700 level or above may also count toward the minimum graduate coursework (50%) requirement. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Yes—see program website ([http://www.stat.wisc.edu/phd-masters/MS\\_Degree\\_Regulations](http://www.stat.wisc.edu/phd-masters/MS_Degree_Regulations)) for a list of required courses.

### OVERALL GRADUATE GPA REQUIREMENT

Minimum 3.00 GPA required.

### OTHER GRADE REQUIREMENTS

A grade of B or better must be received in any course used to fulfill the required and elective course requirements.

### PROBATION POLICY

Three consecutive reviews in which a student fails to meet the minimum criteria for satisfactory progress will result in the student being dropped from the program. Contact the program for more information.

### ADVISOR / COMMITTEE

Students are required to meet with their advisor near the beginning of each semester to discuss course selection and progress.

### ASSESSMENT AND EXAMINATIONS

Students must pass a competency test containing both a written and an oral component, demonstrating that they have the potential to be a practicing statistician.

### TIME CONSTRAINTS

The competency test must be passed within six semesters after entering the department.

### LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Students holding a bachelor's degree with a natural science, social science, or engineering major and strong mathematical background are encouraged to apply for admission to the graduate program in statistics. Students are advised to undertake graduate work in statistics only if their undergraduate grades in mathematics were uniformly high. Students cannot get credit for more than one of STAT 301 Introduction to Statistical Methods, STAT 324 Introductory Applied Statistics for Engineers, or STAT 371 Introductory Applied Statistics for the Life Sciences.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Demonstrates understanding of statistical theories, methodologies, and applications as tools in scientific inquiries.
- Selects and utilizes the most appropriate statistical methodologies and practices.
- Synthesizes information pertaining to questions in empirical studies.
- Communicates data concepts and analysis results clearly.

### PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Y. Wang (chair), Chappell, Clayton, Keles, Larget, Loh, Newton, Nordheim, Qian, Shao, Tsui, Wahba, Yandell, Yuan, C. Zhang, Z. Zhang, J. Zhu; Associate Professors Ane, S. Wang; Assistant Professors Hanlon, Raskutti, Rohe, A. Zhang

## STATISTICS, PH.D.

The Department of Statistics offers a rich variety of courses and seminars in almost all branches of statistical theory and applications. The department offers the master of science (M.S.) and the doctor of philosophy in statistics (Ph.D), and M.S. and Ph.D. degrees in statistics with a named option in biostatistics. An M.S. in statistics with a named option in data science is also available to students meeting the criteria (see the data science (<http://www.stat.wisc.edu/ms-degree-data-science-option-ms-ds>) page for more details). In addition, the department is closely involved with the biometry program, and with the School of Medicine and Public Health's Department of Biostatistics and Medical Informatics, both listed separately in this catalog.

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The department may be consulted for specific career information. A number of assistantships are available each year; see the department website (<http://www.stat.wisc.edu>) for application materials and deadlines. The master's degree programs are described below.

Additional information about the master's and Ph.D. programs, including time limits, can also be obtained from the department.

## FUNDING

Prospective students should see the program website (<http://www.stat.wisc.edu/financial-aid>) for funding information.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D., with available named option in Biostatistics

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least half of degree coursework (26 credits out of 51 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions toward the graduate degree credit and graduate coursework (50%) requirements. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, up to 6 statistics credits from a UW-Madison undergraduate degree at the 600 level or above are allowed to count toward minimum graduate degree credits. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, up to 15 statistics credits completed at UW-Madison while a University Special student at the 300 level or above are allowed to count toward minimum graduate degree and graduate residence credit requirements. Of these credits, those at the 700 level or above may also count toward the minimum graduate coursework (50%) requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

### CREDITS PER TERM ALLOWED

15 credits

### PROGRAM-SPECIFIC COURSES REQUIRED

Yes—see program website ([http://www.stat.wisc.edu/phd-masters/PhD\\_Degree\\_Regulations](http://www.stat.wisc.edu/phd-masters/PhD_Degree_Regulations)) for a list of required courses.

### DOCTORAL MINOR/BREADTH REQUIREMENTS

Students are required to complete either an Option A or Option B minor (at least 9 credits), or they may instead opt to complete a Breadth Option (called "Option C" in the statistics department) option consisting of at least two of the following three: participatory seminar experience, collaborative research experience, and/or a breadth course.



See the program website ([http://www.stat.wisc.edu/phd-masters/PhD\\_Degree\\_Regulations](http://www.stat.wisc.edu/phd-masters/PhD_Degree_Regulations)) for more details.

## OVERALL GRADUATE GPA REQUIREMENT

Minimum 3.00 GPA required.

## OTHER GRADE REQUIREMENTS

A grade of B or better must be received in any course used to fulfill the required and elective course requirements.

## PROBATION POLICY

Three consecutive reviews in which a student fails to meet the minimum criteria for satisfactory progress will result in the student being dropped from the program. Contact the program for more information.

## ADVISOR

Students are required to meet with their advisor near the beginning of each semester to discuss course selection and progress.

## ASSESSMENT AND EXAMINATIONS

Students must pass the Ph.D. qualifying examination, an oral preliminary examination on a topic selected with the approval of the student's advisor, and a thesis defense.

## TIME CONSTRAINTS

Students must pass the Ph.D. qualifying examination within six semesters from the first fall semester of registration as a graduate student in the department. Students who complete a master's in the department and then are admitted to the Ph.D. program must pass the Ph.D. qualifying examination within four semesters after entering the Ph.D. program.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

Students holding a bachelor's degree with a natural science, social science, or engineering major and strong mathematical background are encouraged to apply for admission to the graduate program in statistics. Students are advised to undertake graduate work in statistics only if their undergraduate grades in mathematics were uniformly high. Students cannot get credit for more than one of STAT 301 Introduction to Statistical Methods, STAT 324 Introductory Applied Statistics for Engineers, or STAT 371 Introductory Applied Statistics for the Life Sciences.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Articulates research problems, potentials, and limits with respect to the theories, methodologies, and/or applications of statistics.
- Formulates ideas, concepts, designs, and methods beyond the current boundaries of knowledge within statistics.
- Creates research that makes a substantive contribution to theoretical and/or applied statistics.

- Demonstrates breadth in the theories, methodologies, and applications of statistics.
- Advances contributions of statistics to society.
- Communicates complex ideas in a clear and understandable manner.

## PROFESSIONAL CONDUCT

- Fosters ethical and professional conduct.

## PEOPLE

**Faculty:** Professors Y. Wang (chair), Chappell, Clayton, Keles, Larget, Loh, Newton, Nordheim, Qian, Shao, Tsui, Wahba, Yandell, Yuan, C. Zhang, Z. Zhang, J. Zhu; Associate Professors Ane, S. Wang; Assistant Professors Hanlon, Raskutti, Rohe, A. Zhang

## THEATRE AND DRAMA

**Administrative Unit:** Theatre and Drama

**College/School:** School of Education

**Admitting Plans:** MFA

**Degrees Offered:** MFA

**Minors and Certificates:** Doctoral Minor

The department offers the MFA advanced degree. The master of fine arts degree in theatre and drama offers specializations in acting, costume design, lighting design, scene design, and theatre technology.

The faculty in theatre and drama are leaders in their field. Together, they have many credits in all facets of the profession, working within their field of theatre research and practice both nationally and abroad. They are recognized for their critically acclaimed publications and production work and have won major awards and fellowships for scholarship, creative work, and teaching.

Graduate students at UW–Madison come from around the country and the world. Many have been working theatre professionals returning for advanced degrees. Some graduates go on to teach in the academy; others work in the profession as actors, directors, designers, and technologists.

Coursework and specializations are organized around two areas: acting and design and technology. Students in all specializations are encouraged to complement their major area of study by taking courses from other areas in the department.

University Theatre, the producing arm of the Department of Theatre and Drama, provides students with opportunities to complement work begun in the studios and classrooms. At UW–Madison, the stage is our laboratory. Coursework and discussions regularly connect theatre practice and study with larger issues of cultural and intercultural representation.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Theatre and Drama, MFA (p. 714)

### PEOPLE

**Faculty:** Professors Archbold (chair), Boyette, Furumoto, Saldivar, Sims; Associate Professors Brassard, Peterson; Assistant Professors Fan, Lisowski

## THEATRE AND DRAMA, MFA

The MFA offers specialized preparation for careers in professional theatre. The foundation of MFA acting area courses offer a strong base in voice, speech, movement, and acting styles. The core of this specialization focuses on classical text-based acting and Stanislavski/Michael Chekhov techniques balanced with emerging theories and methodologies of actor training. Curricular interests in Asian stage discipline, multicultural theatre, theatre for youth provide additional opportunities for students to enhance their performance study. In

addition to required core classes, electives provide students the ability to explore individual areas of interest in theatre and performance. Directing courses emphasizes an advanced understanding of the elements of play analysis, composition, and conceptualization. By combining studio work, production, observation, and classroom studies, the acting specialization encourages the development of an individual artistic voice in both acting and directing.

The MFA specialization in scene design, costume design, lighting design, or theatre technology strives for a balance of professional training and the practical application of skills through numerous collaborative experiences, both onstage and in the classroom. Students in all four disciplines are encouraged to be creative problem solvers through both an appreciation of the history of their craft and a curiosity about the contemporary world of theatre, design and the application of new technologies. Numerous opportunities for realized work, studio collaborations and individualized mentoring affords the MFA student the opportunity to grow and develop as an articulate and collaborative theatre artist.

### FUNDING

Funding opportunities for graduate work vary, but tend to be highly competitive. Please contact the department for more information on student financial support.

### REQUIREMENTS

#### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

#### MASTER OF FINE ARTS DEGREE

MFA

#### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

75 credits

#### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

33 credits

#### MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

#### PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students may count no more than 18 credits of graduate coursework from other institutions.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, students may count up to 7 credits numbered 300 or above.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students may count up to 15 credits numbered 700 or above.

## CREDITS PER TERM ALLOWED

15 credits

## PROGRAM-SPECIFIC COURSES REQUIRED

Required courses vary by subdiscipline.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required

## OTHER GRADE REQUIREMENTS

No other specific grade requirements.

## PROBATION POLICY

Each of the MFA Specializations in Acting, Costume Design, Lighting Design, Scene Design, and Theatre Technology conducts separate reviews of students each semester by portfolio and/or oral examination. Students may be placed on probation if program faculty determines that they are not meeting the expectations of their specific degree requirements.

## ADVISOR / COMMITTEE

A thesis or final creative project must be prepared under the direction and guidance of a major professor.

Committee consists of four members—advisor and three other committee members.

## ASSESSMENTS AND EXAMINATIONS

Design and Technology students must pass two candidacy portfolio examinations in the first year of residency. They must pass two comprehensive-progress, portfolio examinations in both the second and third years of residency.

Acting candidates are required to pass an oral review of their work and study at the end of each semester.

A research or creative thesis is required for Design and Technology candidates.

Acting candidates must complete a final creative/research project.

## TIME CONSTRAINTS

The MFA Specialization in Acting follows a three-year cycle with a sequential curriculum. Only in exceptional circumstances the A/D faculty may approve a variance in this time frame.

The MFA Specializations in Costume Design, Lighting Design, Scene Design, and Theatre Technology generally follow a three-year timeline and variations from this must be approved by the degree program head.

## LANGUAGE REQUIREMENTS

No language requirements.

## ADMISSIONS

The department requires a clear statement of purpose outlining plans for graduate study. The MFA program requires evidence of creative accomplishment; applicants must request detailed application instructions from the department.

## LEARNING OUTCOMES

## KNOWLEDGE AND SKILLS

- Exhibit exceptional skill and professional competence in theatre practice exemplified by a knowledge and achievement signified by a large body of work.
- Applies advanced analytical levels of inquiry and investigation in the creation, performance, production, or communication of theatre practice.
- Possesses a broad knowledge of theatre literature as well as visual and cultural history and applies that knowledge to the production process.
- Demonstrates the requisite artistic and technical skills to meet professional standards.
- Formulates ideas, concepts, designs, performances and/or techniques that advance the field.
- Articulates complex ideas in a clear and understandable manner.

## PROFESSIONAL CONDUCT

- Recognizes and applies principles of ethical and professional conduct.
- Collaborates effectively, creatively, and generously through respect for the contributions of others.

## PEOPLE

**Faculty:** Professors Archbold (chair), Boyette, Furumoto, Saldivar, Sims; Associate Professors Brassard, Peterson; Assistant Professors Fan, Lisowski

## VETERINARY MEDICINE— SCHOOL-WIDE

**Administrative Unit:** School of Veterinary Medicine

**College/School:** School of Veterinary Medicine

**Admitting Plans:** M.S., Ph.D.

**Degrees Offered:** M.S., Ph.D.

**Minors and Certificates:** Doctoral Minor

The comparative biomedical sciences (CBMS) graduate program emphasizes an integrated approach to contemporary biology that combines molecular and cellular techniques with the analysis of complex whole animal systems. Faculty provide exceptional graduate and undergraduate interdisciplinary research training opportunities in core areas of animal and human health including immunology, molecular and cellular biology, physiology, neuroscience, genomics, oncology, virology, medical technology, infectious diseases and toxicology and pharmacology. They also contribute extensive public services, both nationally and internationally, within related faculty disciplines.

The graduate program serves as a focal point for graduate research training in the School of Veterinary Medicine (SVM) and is administered by the Department of Pathobiological Sciences. Trainers in CBMS have their tenure homes in all four departments of the School of Veterinary Medicine as well as in the College of Agricultural and Life Sciences (CALs), the School of Medicine and Public Health, the College of Engineering, and the College of Letters & Science. Faculty in the CBMS program also serve in or interface with other campus training programs including bacteriology, biocore, cellular and molecular biology, endocrinology and reproductive physiology, medical microbiology and immunology, molecular and environmental toxicology, and the Primate Center.

Currently, there are approximately 85 faculty trainers in the comparative biomedical sciences program. Affiliate faculty outside the School of Veterinary Medicine have their tenure homes in the Departments of Anatomy, Animal Sciences, Biochemistry, Dermatology, Entomology, Human Oncology, Medical Microbiology and Immunology, Medicine, Neurosurgery, Ophthalmology and Visual Sciences, Pathology and Laboratory Medicine, Population Health Sciences, Radiology, and Surgery. The program is currently comprised of approximately 50 graduate students, most of whom are pursuing the Ph.D. degree. The program is recognized as a premier research and graduate training program for students with or without a degree in veterinary medicine.

### DEGREES/MAJORS, DOCTORAL MINORS, GRADUATE/PROFESSIONAL CERTIFICATES

- Comparative Biomedical Sciences, M.S. (p. 716)
- Comparative Biomedical Sciences, Ph.D. (p. 719)

### PEOPLE

**Faculty:** See Comparative Biomedical Sciences (<http://www.vetmed.wisc.edu/ms-phd/current-students/faculty-trainers>) faculty list.

## COMPARATIVE BIOMEDICAL SCIENCES, M.S.

The comparative biomedical sciences (CBMS) graduate program emphasizes an integrated approach to contemporary biology that combines molecular and cellular techniques with the analysis of complex whole animal systems. Faculty provide exceptional graduate and undergraduate interdisciplinary research training opportunities in core areas of animal and human health including immunology, molecular and cellular biology, physiology, neuroscience, genomics, oncology, virology, medical technology, infectious diseases and toxicology and pharmacology. They also contribute extensive public services, both nationally and internationally, within related faculty disciplines.

The graduate program serves as a focal point for graduate research training in the School of Veterinary Medicine (SVM) and is administered by the Department of Pathobiological Sciences. Trainers in CBMS have their tenure homes in all four departments of the School of Veterinary Medicine as well as in the College of Agricultural and Life Sciences (CALs), the School of Medicine and Public Health, the College of Engineering, and the College of Letters & Science. Faculty in the CBMS program also serve in or interface with other campus training programs including bacteriology, biocore, cellular and molecular biology, endocrinology and reproductive physiology, medical microbiology and immunology, molecular and environmental toxicology, and the Primate Center.

Currently, there are approximately 85 faculty trainers in the comparative biomedical sciences program. Affiliate faculty outside the School of Veterinary Medicine have their tenure homes in the Departments of Anatomy, Animal Sciences, Biochemistry, Dermatology, Entomology, Human Oncology, Medical Microbiology and Immunology, Medicine, Neurosurgery, Ophthalmology and Visual Sciences, Pathology and Laboratory Medicine, Population Health Sciences, Radiology, and Surgery. The program is currently comprised of approximately 50 graduate students, most of whom are pursuing the Ph.D. degree. The program is recognized as a premier research and graduate training program for students with or without a degree in veterinary medicine.

### FUNDING

Most graduate students receive financial support through fellowships, research assistantships through their major professor, and/or National Research Service Awards. Faculty in the program are PIs for four Training Grants (Parasitology and Vector Biology Training Program, Comparative Biomedical Sciences Research Training for Veterinarians, and Research Training for Veterinary Medical Students) for which students with the appropriate background and credentials may compete.

### REQUIREMENTS

## MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

## MASTER'S DEGREES

M.S., M.S./DVM dual degree

## MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

## MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students may transfer no more than 6 credits of advanced graduate coursework from other institutions. These courses may not be used toward the Graduate School's Minimum Graduate Residence Credit. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNDERGRADUATE

With program approval, students may count up to 6 credits of advanced undergraduate coursework from UW-Madison in lieu of or in combination with credits transferred from another institution. These courses must meet the Graduate School's criteria as graduate coursework and may not be used toward the 50% graduate coursework requirement unless taken at the 700 level or above.

## PRIOR COURSEWORK REQUIREMENTS: UW-MADISON UNIVERSITY SPECIAL

With program approval, students may count up to 6 credits of coursework numbered 400 or above taken as a UW-Madison Special student in lieu of or in combination with credits transferred from another institution or as a UW-Madison undergraduate. Coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

8 to 15 credits maximum for fall and spring; 2 credits required in summer if student is supported as RA, TA, or PA. International students supported by government scholarships need not register for summer.

## PROGRAM-SPECIFIC COURSES REQUIRED

Two semesters of Pathobiological Sciences Student Seminar (PATH-BIO 930).

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all major coursework.

## PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full or part-time enrollment the student may be dismissed from the program or allowed to continue based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

All students must have an advisor prior to final admission. A thesis committee consisting of three members, the advisor plus one program trainer and one outside member, must be chosen by the end of the first semester. The third member may be a scientist, industry expert or faculty from another institution.

## ASSESSMENTS AND EXAMINATIONS

After the committee is chosen, the student must submit certification paperwork that details the intended coursework plan, the committee members' names and signatures, a short explanation of why they were chosen and an appended research plan. Certification plans will be reviewed and approved by the program academic committee.

Students are expected to meet with their committee at least once per year until degree completion.

Candidates are required to author a thesis based on original work, or, at the option of the major professor and with the approval of the thesis committee, the equivalent in the form of a substantial paper suitable for publication. The thesis or paper must be approved by the student's committee at least two weeks prior to the final examination. A final public presentation, followed by an oral exam in front of their committee and official deposit of the thesis with the Graduate School is not required.

## TIME CONSTRAINTS

Certification should be completed by the end of the first semester of enrollment.

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements, but that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## COURSES

### REQUIRED COURSES

PATH-BIO 930 Advanced Seminar

Master's students must register for two semesters of PATH-BIO 930 Advanced Seminar and present once during their second semester.

They must take the course pass/fail if not presenting and must attend a minimum of 75 percent of the seminars led by students.

Ph.D. students must register for four semesters of PATH-BIO 930 Advanced Seminar and present twice after their first two semesters. PhD students will take the course pass/fail unless they are presenting. Both presentations must be completed prior to passing to dissertator

status. Students must attend a minimum of 75 percent of the student-led seminars.

## APPROVED AND RECOMMENDED COURSES

The following is a list of core courses taken by many students and recommended courses that are appropriate to specific research areas. These courses are suggestions only; the student and their committee ultimately decide the best coursework plan for each student's specific program, with final approval from the program's academic committee. Students are responsible for determining that the coursework chosen meets the Graduate School's criteria for graduate work.

Code	Title	Credits
<b>Recommended Course</b>		
SURG SCI 812	Research Ethics and Career Development	2
Any other science-based ethics course		
<b>Core Courses</b>		
These courses are chosen by many students to fulfill their major coursework plan		
GENETICS 466	Principles of Genetics	3
PATH-BIO/HORT 500	Molecular Biology Techniques	3
PATH-BIO/ M M & I 773	Eukaryotic Microbial Pathogenesis	3
BIOCHEM 501	Introduction to Biochemistry	3
BIOCHEM/ GENETICS/ MICROBIO 612	Prokaryotic Molecular Biology	3
BIOCHEM/ GENETICS/ MD GENET 620	Eukaryotic Molecular Biology	3
BIOCHEM/PHMCOL- M/ZOOLOGY 630	Cellular Signal Transduction Mechanisms	3
ZOOLOGY 570	Cell Biology	3
PATH 750	Cellular and Molecular Biology/ Pathology	2-3
PATH 751	Cell and Molecular Biology of Aging	3
STAT/F&W ECOL/ HORT 571 & STAT/F&W ECOL/ HORT 572	Statistical Methods for Bioscience I and Statistical Methods for Bioscience II	8
<b>Courses from which Students Build Disciplinary Strength</b>		
<i>Epidemiology</i>		
PATH-BIO 512	Introduction to Veterinary Epidemiology	2
POP HLTH/SOC 797	Introduction to Epidemiology	3
POP HLTH 802	Advanced Epidemiology: Etiology and Prevention	3
<i>Physiology</i>		
AN SCI/DY SCI 434	Reproductive Physiology	3
COMP BIO 551	Veterinary Physiology A (fall)	4
COMP BIO 506	Veterinary Physiology B (spring)	4
ZOOLOGY 611	Comparative and Evolutionary Physiology	3
ZOOLOGY/AN SCI/ OBS&GYN 954	Seminar in Endocrinology- Reproductive Physiology	1
<i>Infectious Disease and Immunology</i>		

PATH-BIO 510	Veterinary Immunology	3
PATH-BIO 514	Veterinary Parasitology	3
PATH-BIO 517	Veterinary Bacteriology and Mycology	4
PATH-BIO 513	Veterinary Virology	2
PATH-BIO/M M & I/ MICROBIO 528	Immunology	3
PATH-BIO/ M M & I 750	Host-Parasite Relationships in Vertebrate Viral Disease	3
M M & I 701	Infection and Immunity I	4
PATH-BIO/ M M & I 773	Eukaryotic Microbial Pathogenesis	3
M M & I/PATH- BIO 720	Advanced Immunology: Critical Thinking	3
M M & I/MICROBIO/ PATH-BIO 790	Immunology of Infectious Disease	3
<i>Neuroscience</i>		
COMP BIO 505	Veterinary Neuroanatomy and Neurophysiology	3
ZOOLOGY/ PSYCH 523	Neurobiology	3
NTP/PHMCOL-M/ PHYSIOL 610	Cellular and Molecular Neuroscience	4
NTP/ANATOMY/ PHMCOL-M/ PHYSIOL/ PSYCH 611	Systems Neuroscience	4
NTP/NEUROL 735	Neurobiology of Disease	2
ZOOLOGY/ NTP/PHYSIOL/ PSYCH 524	Neurobiology II: An Introduction to the Brain and Behavior	3
<i>Toxicology and Pharmacology</i>		
COMP BIO 555	Veterinary Toxicology	2
PATH/M&ENVTOX/ MEDICINE/ ONCOLOGY/ PHM SCI/PHMCOL- M/POP HLTH 625	Toxicology I	3
PATH/M&ENVTOX/ MEDICINE/PHM SCI/ PHMCOL-M/ POP HLTH 626	Toxicology II	3
<i>Oncology</i>		
ONCOLOGY 675	Advanced or Special Topics in Cancer Research	1-3
ONCOLOGY 703	Carcinogenesis and Tumor Cell Biology	3
<i>Virology</i>		
PATH-BIO 513	Veterinary Virology	2
BIOCHEM/ M M & I 575	Biology of Viruses	2
ONCOLOGY/ MICROBIO/ PL PATH 640	General Virology-Multiplication of Viruses	3
M M & I/PATH- BIO 750	Host-Parasite Relationships in Vertebrate Viral Disease	3

## ADMISSIONS

Admission is competitive. Applicants must hold a B.S., DVM., M.S., M.A. or M.D. from an approved institution and have a strong background in biology and chemistry. Applications are judged on the basis of previous academic record, graduate record exam (GRE) scores, letters of recommendation, and the personal statement. Before admission, most students must be accepted by an eligible program faculty member who agrees to serve as the major professor. A limited number of students may be offered rotations.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

#### KNOWLEDGE

- Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry and/or schools of practice in the field of study.
- Articulates sources and assembles evidence pertaining to questions or challenges in the field of study.
- Assesses and/or applies methodologies and practices in the field of study.
- Articulates challenges involved in practicing the field of study, elucidates its leading edges, and delineates its current limits with respect to theory, knowledge, and/or practice.
- Appreciates the implication of the primary field of study in terms of challenges, trends, and developments in a social or global context.

#### SKILLS

- Demonstrates abilities to apply knowledge through critical thinking, inquiry, and analysis to solve problems, engage in scholarly work, and/or produce creative products.
- Evaluates, assesses or refines information resources or an information base within the field.
- Communicates clearly in styles appropriate to the field of study.

### PROFESSIONAL CONDUCT

- Recognizes and applies ethical conduct and professional guidelines.

## PEOPLE

**Faculty:** See Comparative Biomedical Sciences (<http://www.vetmed.wisc.edu/ms-phd/current-students/faculty-trainers>) faculty list.

## COMPARATIVE BIOMEDICAL SCIENCES, PH.D.

The comparative biomedical sciences (CBMS) graduate program emphasizes an integrated approach to contemporary biology that combines molecular and cellular techniques with the analysis of complex whole animal systems. Faculty provide exceptional graduate and undergraduate interdisciplinary research training opportunities in core areas of animal and human health including immunology, molecular

and cellular biology, physiology, neuroscience, genomics, oncology, virology, medical technology, infectious diseases and toxicology and pharmacology. They also contribute extensive public services, both nationally and internationally, within related faculty disciplines.

The graduate program serves as a focal point for graduate research training in the School of Veterinary Medicine (SVM) and is administered by the Department of Pathobiological Sciences. Trainers in CBMS have their tenure homes in all four departments of the School of Veterinary Medicine as well as in the College of Agricultural and Life Sciences (CALS), the School of Medicine and Public Health, the College of Engineering, and the College of Letters & Science. Faculty in the CBMS program also serve in or interface with other campus training programs including bacteriology, biocore, cellular and molecular biology, endocrinology and reproductive physiology, medical microbiology and immunology, molecular and environmental toxicology, and the Primate Center.

Currently, there are approximately 85 faculty trainers in the comparative biomedical sciences program. Affiliate faculty outside the School of Veterinary Medicine have their tenure homes in the Departments of Anatomy, Animal Sciences, Biochemistry, Dermatology, Entomology, Human Oncology, Medical Microbiology and Immunology, Medicine, Neurosurgery, Ophthalmology and Visual Sciences, Pathology and Laboratory Medicine, Population Health Sciences, Radiology, and Surgery. The program is currently comprised of approximately 50 graduate students, most of whom are pursuing the Ph.D. degree. The program is recognized as a premier research and graduate training program for students with or without a degree in veterinary medicine.

## FUNDING

Most graduate students receive financial support through fellowships, research assistantships through their major professor, and/or National Research Service Awards. Faculty in the program are PIs for four Training Grants (Parasitology and Vector Biology Training Program, Comparative Biomedical Sciences Research Training for Veterinarians, and Research Training for Veterinary Medical Students) for which students with the appropriate background and credentials may compete.

## REQUIREMENTS

### MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (p. 15) in addition to the requirements of the program.

### DOCTORAL DEGREES

Ph.D., Ph.D./DVM dual degree

### MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

### MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

## MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (<http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle>).

## PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students may transfer no more than 9 credits of advanced graduate coursework from other institutions. These courses may not be used toward the Graduate School's Minimum Graduate Residence Credit. Coursework earned ten or more years prior to admission to the doctoral degree is not allowed to satisfy requirements.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, students may count up to 7 credits of advanced undergraduate coursework taken at UW–Madison in lieu of or in combination with credits transferred from another institution. These courses must meet the Graduate School's criteria as graduate coursework and may not be used toward the 50% graduate coursework requirement unless taken at the 700 level or above.

## PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students may count up to 9 credits of coursework numbered 400 or above taken as a UW–Madison special student in lieu of or in combination with credits transferred from another institution or as a UW–Madison undergraduate. Coursework taken as a University Special student would not be allowed to count toward the 50% graduate coursework minimum unless taken at the 700 level or above. Coursework earned ten or more years prior to admission to the doctoral degree is not allowed to satisfy requirements.

## CREDITS PER TERM ALLOWED

8 to 15 credits maximum for fall and spring; 2 credits required in summer if student is supported as RA, TA, or PA. Dissertators must register for 3 credits in all semesters. International students supported by government scholarships need not register for summer.

## PROGRAM-SPECIFIC COURSES REQUIRED

Four semesters of Pathobiological Sciences Student Seminar (PATH-BIO 930) prior to dissertator status.

## DOCTORAL MINOR/BREADTH REQUIREMENTS

No minor required.

## OVERALL GRADUATE GPA REQUIREMENT

3.00 GPA required.

## OTHER GRADE REQUIREMENTS

Students must earn a B or above in all major coursework.

## PROBATION POLICY

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full or part-time enrollment the student may be

dismissed from the program or allowed to continue based on advisor appeal to the Graduate School.

## ADVISOR / COMMITTEE

All students must have an advisor prior to final admission unless offered a rotation. A dissertation committee consisting of five members, the advisor plus two program trainers and two outside members, must be chosen by the end of the first year. The fifth member may be a scientist, industry expert or faculty from another institution.

## ASSESSMENTS AND EXAMINATIONS

After the committee is chosen, the student must submit certification paperwork that details the intended coursework plan, the committee members' names and signatures, a short explanation of why they were chosen and an appended research plan. Certification plans will be reviewed and approved by the program academic committee.

Students are expected to meet with their committee at least once per year until degree completion.

There are two preliminary examinations. The first (A) consists of a take-home exam of questions authored by the student's dissertation committee, followed by an oral exam. The student may retake the exam once if they fail on the first attempt.

The second preliminary examination (B) requires that the student write their research plan in the form of a major grant application and defend it orally before the committee.

Candidates must present broad-based evidence of general proficiency in research and the ability to conduct independent investigation as demonstrated in a written dissertation presenting original research.

A final public presentation, followed by an oral exam in front of their committee and official deposit of the dissertation with the Graduate School is required.

## TIME CONSTRAINTS

Certification should be completed by the end of the first year of enrollment.

Preliminary examination A should be taken by the end of the second year.

Preliminary examination B should be taken by the end of the third year.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within 5 years after passing preliminary examination B may be required to take another preliminary examination to be admitted to candidacy a second time.

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements, but that coursework may not count toward Graduate School credit requirements.

## LANGUAGE REQUIREMENTS

No language requirements.

## COURSES

### REQUIRED COURSES

PATH-BIO 930 Advanced Seminar



Master's students must register for two semesters of PATH-BIO 930 Advanced Seminar and present once during their second semester. They must take the course pass/fail if not presenting and must attend a minimum of 75 percent of the seminars led by students.

Ph.D. students must register for four semesters of PATH-BIO 930 Advanced Seminar and present twice after their first two semesters. PhD students will take the course pass/fail unless they are presenting. Both presentations must be completed prior to passing to dissertator status. Students must attend a minimum of 75 percent of the student-led seminars.

## APPROVED AND RECOMMENDED COURSES

The following is a list of core courses taken by many students and recommended courses that are appropriate to specific research areas. These courses are suggestions only; the student and their committee ultimately decide the best coursework plan for each student's specific program, with final approval from the program's academic committee. Students are responsible for determining that the coursework chosen meets the Graduate School's criteria for graduate work.

Code	Title	Credits
<b>Recommended Course</b>		
SURG SCI 812	Research Ethics and Career Development	2
Any other science-based ethics course		
<b>Core Courses</b>		
These courses are chosen by many students to fulfill their major coursework plan		
GENETICS 466	Principles of Genetics	3
PATH-BIO/HORT 500	Molecular Biology Techniques	3
PATH-BIO/ M M & I 773	Eukaryotic Microbial Pathogenesis	3
BIOCHEM 501	Introduction to Biochemistry	3
BIOCHEM/ GENETICS/ MICROBIO 612	Prokaryotic Molecular Biology	3
BIOCHEM/ GENETICS/ MD GENET 620	Eukaryotic Molecular Biology	3
BIOCHEM/PHMCOL- M/ZOOLOGY 630	Cellular Signal Transduction Mechanisms	3
ZOOLOGY 570	Cell Biology	3
PATH 750	Cellular and Molecular Biology/ Pathology	2-3
PATH 751	Cell and Molecular Biology of Aging	3
STAT/F&W ECOL/ HORT 571 & STAT/F&W ECOL/ HORT 572	Statistical Methods for Bioscience I and Statistical Methods for Bioscience II	8
<b>Courses from which Students Build Disciplinary Strength</b>		
<i>Epidemiology</i>		
PATH-BIO 512	Introduction to Veterinary Epidemiology	2
POP HLTH/SOC 797	Introduction to Epidemiology	3
POP HLTH 802	Advanced Epidemiology: Etiology and Prevention	3
<i>Physiology</i>		

AN SCI/DY SCI 434	Reproductive Physiology	3
COMP BIO 551	Veterinary Physiology A	4
COMP BIO 506	Veterinary Physiology B (spring)	4
ZOOLOGY 611	Comparative and Evolutionary Physiology	3
ZOOLOGY/AN SCI/ OBS&GYN 954	Seminar in Endocrinology- Reproductive Physiology	1
<i>Infectious Disease and Immunology</i>		
M M & I 701	Infection and Immunity I	4
PATH-BIO 510	Veterinary Immunology	3
PATH-BIO 513	Veterinary Virology	2
PATH-BIO 514	Veterinary Parasitology	3
PATH-BIO 517	Veterinary Bacteriology and Mycology	4
PATH-BIO/M M & I/ MICROBIO 528	Immunology	3
PATH-BIO/ M M & I 750	Host-Parasite Relationships in Vertebrate Viral Disease	3
PATH-BIO/ M M & I 773	Eukaryotic Microbial Pathogenesis	3
M M & I/PATH- BIO 720	Advanced Immunology: Critical Thinking	3
M M & I/MICROBIO/ PATH-BIO 790	Immunology of Infectious Disease	3
<i>Neuroscience</i>		
COMP BIO 505	Veterinary Neuroanatomy and Neurophysiology	3
ZOOLOGY/ PSYCH 523	Neurobiology	3
NTP/PHMCOL-M/ PHYSIOL 610	Cellular and Molecular Neuroscience	4
NTP/ANATOMY/ PHMCOL-M/ PHYSIOL/ PSYCH 611	Systems Neuroscience	4
NTP 635		2
ZOOLOGY/ NTP/PHYSIOL/ PSYCH 524	Neurobiology II: An Introduction to the Brain and Behavior	3
<i>Toxicology and Pharmacology</i>		
COMP BIO 555	Veterinary Toxicology	2
<i>Oncology</i>		
PATH/M&ENVTOX/ MEDICINE/ ONCOLOGY/ PHM SCI/PHMCOL- M/POP HLTH 625	Toxicology I	3
PATH/M&ENVTOX/ MEDICINE/PHM SCI/ PHMCOL-M/ POP HLTH 626	Toxicology II	3
ONCOLOGY 675	Advanced or Special Topics in Cancer Research	1-3
ONCOLOGY 703	Carcinogenesis and Tumor Cell Biology	3
<i>Virology</i>		

PATH-BIO 513	Veterinary Virology	2
BIOCHEM/ M M & I 575	Biology of Viruses	2
ONCOLOGY/ MICROBIO/ PL PATH 640	General Virology-Multiplication of Viruses	3
M M & I/PATH- BIO 750	Host-Parasite Relationships in Vertebrate Viral Disease	3

## ADMISSIONS

Admission is competitive. Applicants must hold a B.S., DVM., M.S., M.A. or M.D. from an approved institution and have a strong background in biology and chemistry. Applications are judged on the basis of previous academic record, graduate record exam (GRE) scores, letters of recommendation, and the personal statement. Before admission, most students must be accepted by an eligible program faculty member who agrees to serve as the major professor. A limited number of students may be offered rotations.

## LEARNING OUTCOMES

### KNOWLEDGE AND SKILLS

- Regardless of whether an individual is awarded a master's degree, the doctoral-level learning goals are inclusive of the master's level learning goals.

### KNOWLEDGE

- Initiates, assembles, arranges and/or reformulates ideas, concepts, designs, and/or techniques in carrying out a project beyond conventional boundaries.
- Engages diverse cultural, historical or personal perspectives and articulates how these perspectives contribute to a project, paper or performance.

### SKILLS

- Creates research, scholarship or performance that makes a substantive contribution to the field of study.
- Demonstrates breadth within their learning experiences.
- Implements methodologies and/or practices and illustrates their relationships to allied fields.
- Develops new concepts and methodologies and/or identifies new research opportunities.
- Communicates complex and/or ambiguous ideas clearly.
- Evaluates the implications of one's own scholarship/research/performance to broader social concerns.

### PROFESSIONAL CONDUCT

- Recognizes and applies ethical conduct and professional guidelines.

## PEOPLE

**Faculty:** See Comparative Biomedical Sciences (<http://www.vetmed.wisc.edu/ms-phd/current-students/faculty-trainers>) faculty list.

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