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, Geology, 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 (http://guide.wisc.edu/graduate/#policiesandrequirements) 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 Keeover-Ring, Maeda, McCulloh; Affiliate and Adjunct Faculty: Amasino, Brunet, Spooner, Wiedenhoft, P. Zedler