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.

MINIMUM 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/#policiesandrequirementstext) 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 require 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