AGRONOMY, M.S.

The mission of the Department of Agronomy is to generate, integrate and apply knowledge about crop plants that are grown for food, feed, and the general benefit of humankind. We find and disseminate answers to problems and discover opportunities concerning efficiency and sustainability of production, improvements in quality, and methods for safe and environmentally sound practices.

An education 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, agroecology, cropping systems ecology and ecosystem modeling, crop management and protection, plant breeding, biochemistry, genetics, and genomics.

The UW–Madison Department of Agronomy is one of the most highly ranked and regarded departments in the nation. We are committed to integrated research, development, teaching, and outreach to address issues of food scarcity, food quality and nutrition, environmental impact, and sustainability.

The department maintains or has access to excellent facilities for research, including fully equipped laboratories, growth chambers and greenhouses, and complete field facilities at nearby agricultural research stations and 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. The Wisconsin Crop Innovation Center opened in 2017 and houses a cutting edge transgenic plant laboratory and 26,000 square feet of highly controlled greenhouse space and other lab facilities.

ADMISSIONS

Candidates for graduate study should have a bachelor’s degree in agriculture or in the biological, chemical, or physical sciences. Contact the department or visit the website (http://agronomy.wisc.edu/graduate-admissions/for-prospective-graduate-students) 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 twice a year, at summer/fall and spring admissions; however, candidates for university fellowships must apply by January 2 for fall enrollment.

Department deadlines are October 1 for spring admission and February 1 for summer/fall admission.

Agronomy admissions FAQs (https://agronomy.wisc.edu/graduate-admissions/for-prospective-graduate-students).

GRADUATE SCHOOL ADMISSIONS

Graduate admissions is a two-step process between academic degree programs and the Graduate School. Applicants must meet requirements of both the program(s) and the Graduate School. Once you have researched the graduate program(s) you are interested in, apply online (https://grad.wisc.edu/admissions).

FUNDING

GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding) is available from the Graduate School. Be sure to check with your program for individual policies and processes related to funding.

PROGRAM RESOURCES

The vast majority of our graduate students are awarded research assistantships to fund their education. These RA appointments come with tuition remission and a monthly stipend for living expenses. These assistantships come directly from the mentoring faculty; as a result, space in our graduate program is extremely limited.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/policiesandrequirementstext), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

<table>
<thead>
<tr>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Mode of Instruction Definitions

Evening/Weekend: These programs are offered in an evening and/or weekend format to accommodate working schedules. Enjoy the advantages of on-campus courses and personal connections, while keeping your day job. For more information about the meeting schedule of a specific program, contact the program.

Online: These programs are offered primarily online. Many available online programs can be completed almost entirely online with all online programs offering at least 50 percent or more of the program work online. Some online programs have an on-campus component that is often designed to accommodate working schedules. Take advantage of the convenience of online learning while participating in a rich, interactive learning environment. For more information about the online nature of a specific program, contact the program.

Hybrid: These programs have innovative curricula that combine on-campus and online formats. Most hybrid programs are completed on-campus with a partial or completely online semester. For more information about the hybrid schedule of a specific program, contact the program.

Accelerated: These on-campus programs are offered in an accelerated format that allows you to complete your program in a condensed time-frame. Enjoy the advantages of on-campus courses with minimal disruption to your career. For more information about the accelerated nature of a specific program, contact the program.
CURRICULAR REQUIREMENTS

Minimum Credit Requirement 30 credits
Minimum Residence Credit Requirement 16 credits
Minimum Graduate Coursework Requirement
The minimum graduate coursework (50%) requirement states that at least 50% of credits applied toward the program's graduate degree credit requirement must be courses designed for graduate work (this includes but is not limited to online, thesis/research, independent study, and practicum/internship credits). For the agronomy department that is 15 credits.

The official university documentation of “graduate level” coursework is identified with the graduate course attribute (G50%) in the university’s Course Guide and Class Search (https://public.my.wisc.edu/web/expanded).

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.
Assessments and Examinations Students intending to terminate their graduate program at the UW with the M.S. degree are required to present an exit seminar, preferably prior to their M.S. oral exam.
Language Requirements The agronomy department does not have any language requirements.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year of general chemistry with labs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 semester of organic chemistry with labs</td>
<td></td>
<td></td>
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<tr>
<td>4 semesters of biology distributed among three of the following four areas:</td>
<td></td>
<td></td>
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<tr>
<td>biochemistry</td>
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<td></td>
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<tr>
<td>genetics</td>
<td></td>
<td></td>
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<tr>
<td>plant morphology, anatomy, or physiology</td>
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<td></td>
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<tr>
<td>taxonomy, evolution, or ecology</td>
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<tr>
<td>Choose one of the following:</td>
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<tr>
<td>AGRONOMY 920 Seminar</td>
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<tr>
<td>AGRONOMY/GENETICS/HORT 957 Seminar-Plant Breeding</td>
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Requests for deviations from these requirements can be made to the Graduate Studies Committee with permission and advice from your advisor.

Your undergraduate courses may be used towards this requirement, if the courses were rigorous and met the expectations of graduate work. Coursework earned five or more years prior to admission for your master’s cannot be counted. These undergraduate classes can only count towards this requirement; they cannot count towards the Minimum Graduate Credit Residence Requirement (16 credits). See Prior Coursework.

Teaching experience is not required but it is highly recommended.

POLICIES

GRADUATE SCHOOL POLICIES
The Graduate School’s Academic Policies and Procedures (https://grad.wisc.edu/acadpolicy) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

MAJOR-SPECIFIC POLICIES

GRADUATE PROGRAM HANDBOOK
The Graduate Program Handbook (http://agronomy.wisc.edu/graduate-handbook) is the repository for all of the program’s policies and requirements.

PRIOR COURSEWORK

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.

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.

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.

PROBATION

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 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 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**

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the student is expected to meet with their advisor on a regular basis. The advisor is a faculty member, or sometimes two members, from agronomy responsible for providing advice regarding graduate studies.

Students are usually admitted to the agronomy department directly into the mentorship of a specific advisor, without completing any rotations.

You will choose your thesis committee together with your advisor. The committee consists of your advisor and at least two other faculty members. One faculty member may be from another department.

**CREDITS PER TERM ALLOWED**

The Graduate School considers full-time enrollment to be 8-15 graded credits taken at 300 or above, excluding pass/fail and audit, during the fall and spring semesters, and 4-12 credits during the summer term. If students elect not to enroll as full-time students as defined by the Graduate School, they are responsible for knowing about possible obligations that may require full-time status. Such obligations may include visa eligibility, fellowships, assistantships, financial aid, external funding agencies, and program satisfactory progress requirements.

**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.

**LEARNING OUTCOMES**

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

2. Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.

3. Demonstrates understanding of the primary field of study in a historical, social, or global context.

4. Selects and/or utilizes the most appropriate methodologies and practices.

5. Evaluates or synthesizes information pertaining to questions or challenges in the field of study.

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

7. Recognizes and applies principles of ethical and professional conduct.

**PEOPLE**

**ADMINISTRATION**

Chris Kucharik, Chair

Shawn Conley and Natalia De Leon, Associate Chairs

Sandra Bennett, Department Administrator

**PROGRAM FACULTY AND THEIR AREAS OF STUDY**

Ken Albrecht, Professor - Forages and Grazing Systems

Jean-Michel Ané, Professor - Plant-Microbe Symbioses

Shawn Conley, Professor - Soybean & Small Grain Production

Natalia De Leon, Professor - Plant Breeding and Plant Genetics

Stan Duke, Professor - Barley Malt Quality

Lucía Gutiérrez, Assistant Professor - Cereal Crops Breeding

Cynthia Henson, Professor - Plant Physiology

**PROFESSIONAL DEVELOPMENT**

**GRADUATE SCHOOL RESOURCES**

Take advantage of the Graduate School’s professional development resources (https://grad.wisc.edu/pd) to build skills, thrive academically, and launch your career.

**PROGRAM RESOURCES**

The agronomy department does not require but encourages all students to complete an Individual Development Plan (IDP). As you begin your Graduate School career, an Individual Development Plan (IDP) is an essential tool to help you:

1. Assess your current skills and strengths

2. Make a plan for developing skills that will help you meet your academic and professional goals

3. Communicate with your advisors and mentors about your evolving goals and related skills.

For graduate students in the natural sciences and engineering, the American Association for the Advancement of Science (AAAS) online tool provides a comprehensive set of materials and exercises that will guide you through the process of self-assessment, career exploration, goal-setting, and implementation of your plan. Set up a free account to create and monitor your IDP at myidp.sciencecareers.org (http://myidp.sciencecareers.org).

The UW–Madison IDP template (https://grad.wisc.edu/pd/idp), which includes instructions and examples, is flexible and appropriate for all disciplines.
Randy Jackson, Professor - Grassland Ecosystems, Agroecology
Molly Jahn, Professor - Risk in Food Systems
Heidi Kaeppler, Associate Professor - Cereal Crops Genetics
Shawn Kaeppler, Professor - Plant Breeding and Plant Genetics
Chris Kucharik, Professor - Ecosystems, Land Management, Biogeochemical Cycling
Joe Lauer, Professor - Crop Management (Corn)
Mali Mahalingam, Assistant Professor - Plant Genomics, Stress Physiology
Valentin Picasso, Assistant Professor - Forages and Grazing Systems, Agroecology, Sustainable Agriculture
Mark Renz, Associate Professor - Weed Science
David Stoltenberg, Professor - Cropping Systems, Weed Science, Agroecology, Sustainable Agriculture
Bill Tracy, Professor - Plant Breeding and Plant Genetics (Sweet Corn)
Dan Undersander, Professor - Forages and Grazing Systems
Rodrigo Werle, Assistant Professor - Extension Cropping Systems, Weed Scientist

For full descriptions of each faculty's research interests, see their individual pages on the Agronomy website (http://www.agronomy.wisc.edu).