

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

Please consult the table below for key information about this degree program's admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program's website. Graduate admissions is a two-step process between academic programs and the Graduate School. **Applicants must meet** the minimum requirements (<https://grad.wisc.edu/apply/requirements/>) **of the Graduate School as well as the program(s)**. Once you have researched the graduate program(s) you are interested in, apply online (<https://grad.wisc.edu/apply/>).

| Requirements | Detail |
|------------------------------------|--|
| Fall Deadline | December 1 |
| Spring Deadline | September 1 |
| Summer Deadline | December 1 |
| GRE (Graduate Record Examinations) | Not required. |
| English Proficiency Test | Every applicant whose native language is not English or whose undergraduate instruction was not in English must provide an English proficiency test score and meet the Graduate School minimum requirements (https://grad.wisc.edu/apply/requirements/#english-proficiency). |
| Other Test(s) (e.g., GMAT, MCAT) | n/a |

Letters of Recommendation Required 3

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, transcripts, and three letters of recommendation with two being from academic sources.

Candidates for department research and teaching assistantships can be accepted twice a year, at summer/fall and spring admissions.

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

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 restrictions 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, healthcare, 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. We do not support lab rotations. More details can be found here (<https://agronomy.wisc.edu/graduate-admissions/aidopps/>).

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

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

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

| Face to Face | Evening/Weekend | Online | Hybrid | Accelerated |
|--------------|-----------------|--------|--------|-------------|
| Yes | No | No | No | No |

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

Requirements Detail

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> (<https://public.my.wisc.edu/web/expanded/>)).

Overall 3.00 GPA required.

Graduate GPA Requirement

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

| Code | Title | Credits |
|---------------------------------------|-------|---------|
| M.S. Requirements | | |
| 1 year of general chemistry with labs | | |

1 semester of organic chemistry with labs

4 semesters of biology distributed among three of the following four areas:

biochemistry

genetics

plant morphology, anatomy, or physiology

taxonomy, evolution, or ecology.

Choose one of the following:

AGRONOMY 920 Seminar

AGRONOMY/
GENETICS/
HORT 957 Seminar-Plant Breeding

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

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.

GRIEVANCES AND APPEALS

These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (<https://doso.students.wisc.edu/bias-or-hate-reporting/>)
- Graduate Assistantship Policies and Procedures (<https://hr.wisc.edu/policies/gapp/#grievance-procedure>)
- Hostile and Intimidating Behavior Policies and Procedures (<https://hr.wisc.edu/hib/>)
 - Office of the Provost for Faculty and Staff Affairs (<https://facstaff.provost.wisc.edu/>)

- Dean of Students Office (<https://doso.students.wisc.edu/>) (for all students to seek grievance assistance and support)
- Employee Assistance (<http://www.eao.wisc.edu/>) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (<https://employee disabilities.wisc.edu/>) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (<https://grad.wisc.edu/>) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (<https://compliance.wisc.edu/>) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office of Student Conduct and Community Standards (<https://conduct.students.wisc.edu/>) (for conflicts involving students)
- Ombuds Office for Faculty and Staff (<http://www.ombuds.wisc.edu/>) (for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (<https://compliance.wisc.edu/titleix/>) (for concerns about discrimination)

College of Agricultural and Life Sciences: Grievance Policy

In the College of Agricultural and Life Sciences (CALs), any student who feels unfairly treated by a member of the CALs faculty or staff has the right to complain about the treatment and to receive a prompt hearing. Some complaints may arise from misunderstandings or communication breakdowns and be easily resolved; others may require formal action. Complaints may concern any matter of perceived unfairness.

To ensure a prompt and fair hearing of any complaint, and to protect the rights of both the person complaining and the person at whom the complaint is directed, the following procedures are used in the College of Agricultural and Life Sciences. Any student, undergraduate or graduate, may use these procedures, except employees whose complaints are covered under other campus policies.

1. The student should first talk with the person at whom the complaint is directed. Most issues can be settled at this level. Others may be resolved by established departmental procedures.
2. If the student is unsatisfied, and the complaint involves any unit outside CALs, the student should seek the advice of the dean or director of that unit to determine how to proceed.
 - a. If the complaint involves an academic department in CALs the student should proceed in accordance with item 3 below.
 - b. If the grievance involves a unit in CALs that is not an academic department, the student should proceed in accordance with item 4 below.
3. The student should contact the department's grievance advisor within 120 calendar days of the alleged unfair treatment. The departmental administrator can provide this person's name. The grievance advisor will attempt to resolve the problem informally within 10 working days of receiving the complaint, in discussions with the student and the person at whom the complaint is directed.
 - a. If informal mediation fails, the student can submit the grievance in writing to the grievance advisor within 10 working days of the date the student is informed of the failure of the mediation attempt by the grievance advisor. The grievance advisor will provide a copy to the person at whom the grievance is directed.

- b. The grievance advisor will refer the complaint to a department committee that will obtain a written response from the person at whom the complaint is directed, providing a copy to the student. Either party may request a hearing before the committee. The grievance advisor will provide both parties a written decision within 20 working days from the date of receipt of the written complaint.
 - c. If the grievance involves the department chairperson, the grievance advisor or a member of the grievance committee, these persons may not participate in the review.
 - d. If not satisfied with departmental action, either party has 10 working days from the date of notification of the departmental committee action to file a written appeal to the CALS Equity and Diversity Committee. A subcommittee of this committee will make a preliminary judgement as to whether the case merits further investigation and review. If the subcommittee unanimously determines that the case does not merit further investigation and review, its decision is final. If one or more members of the subcommittee determine that the case does merit further investigation and review, the subcommittee will investigate and seek to resolve the dispute through mediation. If this mediation attempt fails, the subcommittee will bring the case to the full committee. The committee may seek additional information from the parties or hold a hearing. The committee will present a written recommendation to the dean who will provide a final decision within 20 working days of receipt of the committee recommendation.
4. If the alleged unfair treatment occurs in a CALS unit that is not an academic department, the student should, within 120 calendar days of the alleged incident, take his/her grievance directly to the Associate Dean of Academic Affairs. The dean will attempt to resolve the problem informally within 10 working days of receiving the complaint. If this mediation attempt does not succeed the student may file a written complaint with the dean who will refer it to the CALS Equity and Diversity Committee. The committee will seek a written response from the person at whom the complaint is directed, subsequently following other steps delineated in item 3d above.

OTHER

n/a

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.

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

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, Professor – Cereal Crops Breeding

Cynthia Henson – Supervisory Reserch Plant Physiologist

Randy Jackson, Professor – Grassland Ecosystems, Agroecology

Molly Jahn, Professor – Risk in Food Systems

Heidi Kaepler, Associate Professor – Cereal Crops Genetics

Shawn Kaepler, Professor – Plant Breeding and Plant Genetics

Chris Kucharik, Professor and Chair – Ecosystems, Land Management, Biogeochemical Cycling

Joe Lauer, Professor – Crop Management (Corn)

Valentín 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 faculty research interests, see their individual pages on the Agronomy website (<http://www.agronomy.wisc.edu>).