

AGRONOMY, PH.D.

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 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/>)

The following courses are entrance requirements to pursue a Ph.D. in the Department of Agronomy. Applicants are required to have taken the following coursework. At the department's discretion, students may be admitted with deficiencies. These deficiencies are expected to be completed within the first semester of study.

- 1 year general chemistry with labs
- 1 semester organic chemistry with labs
- 1 semester physics
- 1 semester calculus
- 1 semester statistics
- 4 semesters of biology distributed among three of the following four areas: biochemistry; genetics; plant morphology, anatomy or physiology; and taxonomy, evolution, or ecology.

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 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

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students typically take enough credits aimed at completing the program in a year or two.

Evening/Weekend: Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW–Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

Requirement	Detail
Minimum Credit Requirement	51 credits
Minimum Residence Credit Requirement	32 credits
Minimum Graduate Coursework 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 (https://registrar.wisc.edu/course-guide (https://registrar.wisc.edu/course-guide/)).
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 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 dissertation).

As a Ph.D. student you must take your final oral exam within five years of passing the prelim or you will be required to take another preliminary examination and be admitted to candidacy for a second time. All Ph.D. candidates are required to present an exit seminar. This often is most convenient just prior to the final examination, or you may present the seminar as part of the Agronomy Colloquium. The final examination ordinarily covers your dissertation and the general fields of your major and minor studies.

Deposit of the doctoral dissertation in the Graduate School is required.

Language Requirements The Agronomy department does not have any language requirements.

Doctoral Minor/Breadth Requirements Students completing a Ph.D. in Agronomy must also complete requirements for a minor in another department.

The coursework for completion of the minor requirement is decided at the time of certification, with approval of the minor advisor. The minor department sets the requirements for minor completion. In both options, one course cross-listed with the major may be used for the minor, so long as it is staffed by the minor department and is not applicable to any requirements of the major.

The type and completion of the minor is reported to the Graduate School on the preliminary examination warrant.

REQUIRED COURSES

Code	Title	Credits
Three semesters of one or both of the following:		
AGRONOMY 920	Seminar	1
AGRONOMY/ GENETICS/ HORT 957	Seminar-Plant Breeding	1

Prerequisite Courses

Code	Title	Credits
May also be completed on campus if necessary:		
1 year of general chemistry with labs		
1 semester of organic chemistry with labs		
1 semester of physics		
1 semester of calculus		
1 semester of statistics		
4 semesters of biology distributed among three of the following four areas:		
biochemistry		
genetics		

plant morphology, anatomy, or physiology
taxonomy, evolution, or ecology.

These classes can be taken in your undergraduate or master's career. If you begin the program as a master's student and then transition into the PhD program, credits taken as a master's student will count toward the PhD program. At the department's discretion, you may be admitted with deficiencies. These deficiencies are expected to be completed within the first semester of study. The Agronomy Department requires two full-time semesters in residence for a Ph.D. Your certification committee can petition the Graduate Studies Committee for a deviation from the residence requirement under unique circumstances.

Teaching experience is not required, but is highly recommended by the department and the time for completion of this recommended experience should be included on the certification form.

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 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.

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 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.

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

Students are usually admitted to the Agronomy department directly into the mentorship of a specific advisor, without completing any rotations. You are required to form, under the guidance of your advisor, a committee to oversee your Ph.D. degree progress. The composition of the committee complies with Graduate School policy (<https://grad.wisc.edu/documents/committees/>). While not strictly required, continuity in membership of the student's Certification Committee, Preliminary Examination Committee, and Final Examination Committee is strongly encouraged.

CREDITS PER TERM ALLOWED

The Graduate School considers full-time enrollment to be 8–15 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.

Dissertators take exactly 3 credits per semester.

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.

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://employeeabilities.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.

David Stoltenberg, Professor – Cropping Systems, Weed Science, Agroecology, Sustainable Agriculture

Bill Tracy, Professor – Plant Breeding and Plant Genetics (Sweet Corn)

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>).

LEARNING OUTCOMES

1. Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
2. Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
3. Creates research, scholarship, or performance that makes a substantive contribution.
4. Demonstrates breadth within their learning experiences.
5. Advances contributions of the field of study to society.
6. Communicates complex ideas in a clear and understandable manner.
7. Fosters 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, Associate Professor – Cereal Crops Breeding

Cynthia Henson – Supervisory Research 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, Professor – Weed Science