

PLANT PATHOLOGY, PHD

The discipline of plant pathology is directed toward understanding and solving disease problems of plants. The field is broad and complex, integrating disciplines as varied as molecular biology, genetics, cell biology, organismal biology, population and community ecology, meteorology, statistics, computer science, chemistry, and physics. Plant pathology encompasses basic and applied research, employs both model systems and economically important plants, and requires both laboratory and field experimentation. Active research programs in the department encompass this full spectrum of questions and approaches, including research on virology, nematology, fungal genetics, tissue culture, soil microbiology and ecology, forest pathology, bacterial plant pathogens, molecular biology of parasite–host interactions, microbial ecology, epidemiology, and integrated disease management strategies.

The graduate program in plant pathology educates students in the science of plant pathology and prepares them for successful careers. Students develop the following skills required to meet diverse professional situations: excellence in research; breadth and depth in plant pathology; breadth in an allied field; strong critical and analytical thinking skills; and effective communication skills. Students become sufficiently knowledgeable in all aspects of plant pathology to identify key research questions, recognize significant discoveries, and think analytically about interpretation of data.

The level of proficiency in specific areas will vary with the student's research area and career goals, and will be appropriate to the student's degree program (MS or PhD). Specific areas of proficiency addressed by the PhD curriculum include etiology, diagnosis, and management of plant disease; ecology and epidemiology; genetics and physiology of plant–microbe interactions; and organismal biology. PhD students may elect an optional professional development experience as part of their curriculum. Graduates of the program attain positions in teaching, research in academic positions, government services, industry, extension services, and private practice.

The program is comprised of about 100 faculty members, graduate students, and research and support staff. It is housed in an eight-story wing of Russell Laboratories, a teaching and research facility on the UW–Madison campus, which is surrounded by other facilities that are also devoted to biological research. Russell Labs, together with the extensive research facilities available on the rest of the UW–Madison campus and at field research stations throughout Wisconsin, provide a rich and comprehensive environment for research and graduate studies in all branches of plant pathology.

ADMISSIONS

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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	This program does not admit in the spring.
Summer Deadline	December 1
GRE (Graduate Record Examinations)	Not required.
English Proficiency Test	Refer to the Graduate School: Minimum Requirements for Admission policy: https://policy.wisc.edu/library/UW-1241 (https://policy.wisc.edu/library/UW-1241/).
Other Test(s) (e.g., GMAT, MCAT)	n/a
Letters of Recommendation Required	3

APPLICATION

A complete admission application acts as the application for financial support. All applicants who are admitted are offered financial support, generally in the form of a research assistantship (RA).

Checklist

- **Graduate School Application Form and Application Fee**
 - All applicants must complete the Graduate School's online application: <https://grad.wisc.edu/apply/>.
 - The department is able to offer a limited number of fee waivers. Please contact the Graduate Program Manager (<https://hub.russell.wisc.edu/area-homepages/student-services/>) for more information.
- **Supplementary Application**
 - Applicants must submit the Plant Pathology supplementary application, which will appear as part of the Graduate School's electronic application once the applicant selects Plant Pathology.
- **Resume or CV**
 - Applicants must submit resume or CV electronically through the online application.
- **Transcripts**
 - All applicants must upload an unofficial transcript (non-encrypted) in a PDF format to their online application.
 - Any school listed must have a transcript uploads, otherwise the application will not be complete.
 - If an applicant is recommended for admission, they will be asked to submit an official transcript to the Graduate School; official transcripts are not to be mailed to the department.
 - International academic records must be in the original language accompanied by an official English translation. Documents must be issued by the school with the official seal/stamp and an official signature.
 - The Plant Pathology department requires all applicants to have a BA/BS degree from an accredited institution.
 - A minimum undergraduate grade-point average of 3.0 (on a 4.0 scale) on the equivalent of the last 60 semester hours from the most recent bachelor's degree institution is required for regular

admission. If an applicant has received a post-baccalaureate degree and the GPA for that degree is above a 3.0, then they may be admitted with full standing even if their undergraduate GPA does not meet the standards above.

- **Statement of Purpose**
 - This should describe the applicant's graduate program objectives and career focus. Since applicants are rarely admitted to the PhD program without prior research experience, applicants must describe past research experiences in their statement.
 - The statement of purpose should be around two pages in length
- **Three Letters of Recommendation**
 - These letters are preferably from people acquainted with the applicant's academic, research and/or professional qualifications.
 - Letters must be submitted online through the Graduate School's electronic format; references experiencing difficulty with the online system should contact the Graduate Program Manager (<https://hub.russell.wisc.edu/area-homepages/student-services/>).
- **English Proficiency Test Scores** (if applicable - refer to table above)

BACKGROUND EDUCATION

Admitted applicants must meet the Graduate School's minimum requirements (<https://grad.wisc.edu/apply/requirements/>), including completion of a bachelor's degree. Satisfactory preparation for graduate study in plant pathology includes coursework in biology, chemistry, math, and physics (foundation coursework).

Typically, successful applicants exceed the minimum requirement of a 3.0 GPA (on a 4.0 scale) and articulate a strong interest in the discipline in their application. Prior research experience is an asset for any applicant, and letters of recommendation from research advisors are viewed as one of the most useful means of evaluating applications.

PREPARATORY COURSEWORK

The program recommends admitted applicants enter the program having taken the foundation courses below. If an admitted applicant enters the program with foundational coursework deficiencies, their thesis committee may recommend courses be completed during the program.

Foundation Courses

- Biology (one course in at least 3 of the following 4 areas):
 - Genetics
 - Plant anatomy/morphology
 - Plant physiology
 - General ecology
- Chemistry
 - General chemistry (two semesters)
 - Organic chemistry (including lab)
- Other preparatory courses
 - General/introductory biochemistry (one course)
 - Physics (two semesters)
 - Calculus (one course)
 - Statistics (one course)

DEADLINE

Applications received after the deadline will be reviewed, but they are disadvantaged for admission and financial support.

FUNDING

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GRADUATE SCHOOL RESOURCES

The Bursar's Office provides information about tuition and fees associated with being a graduate student. Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information is available from the Graduate School.

Be sure to check with your program for individual policies and restrictions related to funding.

PROGRAM RESOURCES

The department offers stipends to the most highly qualified applicants, and students are funded throughout their programs by research assistantships, fellowships, or traineeships. The department nominates outstanding students for external fellowships and supports and assists students who apply for scholarships and other forms of financial support.

Additional information regarding funding can be found on the department's funding information webpage (<https://plantpath.wisc.edu/funding-information/>).

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum degree requirements (<https://guide.wisc.edu/graduate/#requirementstext>) and policies (<https://guide.wisc.edu/graduate/#policiestext>), 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	26 credits must be graduate-level coursework. Refer to the Graduate School: Minimum Graduate Coursework (50%) Requirement policy: https://policy.wisc.edu/library/UW-1244 (https://policy.wisc.edu/library/UW-1244/).
Overall Graduate GPA Requirement	3.00 GPA required. Refer to the Graduate School: Grade Point Average (GPA) Requirement policy: https://policy.wisc.edu/library/UW-1203 (https://policy.wisc.edu/library/UW-1203/).
Other Grade Requirements	n/a
Assessments and Examinations	Students in the Plant Pathology PhD must complete certification paperwork to outline their coursework, pass a departmental written qualifying exam, pass an oral preliminary examination, and prepare, publicly present, and defend a dissertation.
Language Requirements	None.
Graduate School Breadth Requirement	All doctoral students are required to complete a doctoral minor or graduate/professional certificate. Refer to the Graduate School: Breadth Requirement in Doctoral Training policy: https://policy.wisc.edu/library/UW-1200 (https://policy.wisc.edu/library/UW-1200/).

REQUIRED COURSES

Code	Title	Credits
Major Requirements		
PL PATH 300	Introduction to Plant Pathology	4
PL PATH/BOTANY/ENTOM 505	Plant-Microbe Interactions: Molecular and Ecological Aspects	3
PL PATH 559	Diseases of Economic Plants	3
PL PATH 602	Ecology, Epidemiology and Control of Plant Diseases	3
PL PATH 799	Practicum in Plant Pathology Teaching	2
PL PATH 875	Special Topics (Must complete two semesters)	2
PL PATH 923	Seminar (Must complete two semesters)	2
Additional Coursework		32
The remaining credits to fulfill the credit minimum are electives chosen in consultation with the student's advisor and committee.		
Total Credits		51

POLICIES

GRADUATE SCHOOL POLICIES

The Graduate School's Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy/>) serve as the official document of record for Graduate School academic and administrative policies and procedures and are updated continuously. Note some policies redirect to entries in the official UW-Madison Policy Library (<https://policy.wisc.edu/>). Programs may set more stringent policies than the Graduate School. Policies set by the academic degree program can be found below.

MAJOR-SPECIFIC POLICIES

PRIOR COURSEWORK

Graduate Credits Earned at Other Institutions

Refer to the Graduate School: Transfer Credits for Prior Coursework (<https://policy.wisc.edu/library/UW-1216/>) policy.

Undergraduate Credits Earned at Other Institutions or UW-Madison

Refer to the Graduate School: Transfer Credits for Prior Coursework (<https://policy.wisc.edu/library/UW-1216/>) policy.

Credits Earned as a Professional Student at UW-Madison (Law, Medicine, Pharmacy, and Veterinary careers)

Refer to the Graduate School: Transfer Credits for Prior Coursework (<https://policy.wisc.edu/library/UW-1216/>) policy.

Credits Earned as a University Special Student at UW-Madison

Refer to the Graduate School: Transfer Credits for Prior Coursework (<https://policy.wisc.edu/library/UW-1216/>) policy.

PROBATION

Refer to the Graduate School: Probation (<https://policy.wisc.edu/library/UW-1217/>) policy.

ADVISOR / COMMITTEE

Refer to the Graduate School: Advisor (<https://policy.wisc.edu/library/UW-1232/>) and Graduate School: Committees (Doctoral/Master's/MFA) (<https://policy.wisc.edu/library/UW-1201/>) policies.

CREDITS PER TERM ALLOWED

15 credit maximum. Refer to the Graduate School: Maximum Credit Loads and Overload Requests (<https://policy.wisc.edu/library/UW-1228/>) policy.

TIME LIMITS

Refer to the Graduate School: Time Limits (<https://policy.wisc.edu/library/UW-1221/>) policy.

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/>)
- 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 Student Assistance and Support (OSAS) (<https://osas.wisc.edu/>) (for all students to seek grievance assistance and support)
- 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)

Plant Pathology Grievance and Appeals Procedures

If a student feels unfairly treated or aggrieved by faculty, staff, or another student, the University offers several avenues to resolve academic and non-academic grievances. Students' concerns about unfair treatment are best handled directly with the person responsible for the objectionable action. If the student is uncomfortable making direct contact with the individual(s) involved, they should contact the Plant Pathology Department Chair, the Student Services Coordinator, or the Russell Labs Department Administrator.

Students are encouraged to also use campus resources (above) if the issue involves sexual harassment or assault, violence, discrimination, bias or hate, hostile or intimidating behavior, employment concerns, or disability accommodations.

Procedures for proper accounting of student grievances:

1. The student is encouraged to speak first with the person toward whom the grievance is directed to see if a situation can be resolved at this level.
2. Should a satisfactory resolution not be achieved, the student should contact the Plant Pathology Department Chair, the Student Services Coordinator, or the Russell Labs Department Administrator to discuss the grievance. Students can also contact any of the Russell Labs Department Chairs to discuss the grievance. Any of the above people will facilitate problem resolution through informal channels and facilitate any complaints or issues of students. The first attempt is to help students informally address the grievance prior to any formal complaint. Students are also encouraged to talk with their faculty advisors regarding concerns or difficulties if necessary.
3. If the issue is not resolved to the student's satisfaction the student can submit the grievance to the Department Chair and Student Services Coordinator in writing, within 120 calendar days of the alleged unfair treatment.
4. On receipt of a written complaint, a faculty committee will be convened to manage the grievance. The program faculty committee will obtain a written response from the person toward whom the complaint is directed. This response will be shared with the person filing the grievance.
5. The faculty committee will determine a decision regarding the grievance, and will report on the action taken by the committee in writing to both the student and the party toward whom the complaint was directed within 15 working days from the date the complaint was received.
6. At this point, if either party (the student or the person toward whom the grievance is directed) is unsatisfied with the decision of the faculty committee, the party may file a written appeal. Either party has 15 working days to file a written appeal to the College of Agricultural and Life Sciences Academic Affairs Office.
7. Documentation of the grievance will be stored for at least 7 years. Significant grievances that set a precedent will be stored indefinitely.

The Graduate School has procedures for students wishing to appeal a grievance decision made at the school/college level. These policies are described in the Graduate School's Academic Policies and Procedures: <https://grad.wisc.edu/documents/grievances-and-appeals/>.

OTHER

n/a

PROFESSIONAL DEVELOPMENT

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

Students in the Department of Plant Pathology are strongly encouraged to participate in events through the Plant Pathology Graduate Council. (<http://labs.russell.wisc.edu/ppgc/>)

LEARNING OUTCOMES

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1. Demonstrate an understanding of the basic processes of pathogenesis, plant defense, and defense circumvention at the molecular, genetic and physiological level for each of the major groups of plant pathogens and other plant associated microorganisms.
2. Demonstrate an understanding of the basic biology of microorganisms that are symbiotic with plants including fungi, bacteria, viruses, oomycetes, and nematodes.
3. Demonstrate an understanding of the etiology, ecology, and epidemiology of economically significant diseases caused by the major groups of plant pathogens.
4. Construct disease management strategies for the different groups of important plant pathogens.
5. Demonstrate excellent problem solving skills and a deep conceptual understanding of the science of Plant Pathology.

6. Convey knowledge in a variety of formats to diverse audiences including the public, students, and fellow scientists.