



UNIVERSITY
OF MINNESOTA

CFANS
COLLEGE OF FOOD, AGRICULTURAL
AND NATURAL RESOURCE SCIENCES

**PLANT
PATHOLOGY**



University of Minnesota Department of Plant Pathology

Graduate Student Handbook 2022-2023

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Greeting from the Department Head

Welcome to the UMN Graduate Program in Plant Pathology! I am so pleased that you chose our graduate program to further your education and I certainly for one think you made the right choice. As a member of this department for almost 30 years, I have come to appreciate our wonderful and diverse staff and faculty and the many talents of the graduate students in our graduate program. You are joining an amazing group of scientists who are passionate about plant pathology and in translating our science into real-world plant health solutions.

Ours is one of the oldest departments of plant pathology in the world, with an illustrious history of scientific research with both scientific and practical implications. Our contemporary cohort of faculty, staff, and students still strive to meet our departmental mission, but does so using modern techniques and equipment, reflecting the ongoing progress in scientific research. You will have many opportunities to develop and hone your scientific skills and to further your professional development during your graduate studies.

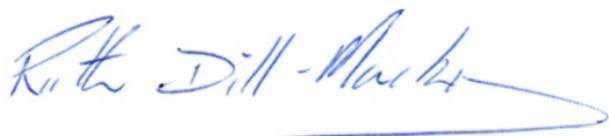
We are a small and mighty graduate program. You are joining a group of about 25 graduate students who hail from across the US and around the world. Our students work on diverse aspects of plant pathology from the molecular basis of pathogenesis to disease management strategies in production fields. Students also conduct research in some surprising settings including rainforests in the Amazon, the Soudan Mine in northern Minnesota, and farms in east Africa. Passionate about sharing Plant Pathology, our students engage in science communication through social media, science outreach activities, and community engagement. Our students are leaders at all levels, from serving on departmental committees to holding elected offices at the college or university level to engagement with our professional society. Our graduate program and the UMN at-large offer numerous opportunities to expand your horizons and tailor your graduate experience to your exact career goals and interests. Supporting the professional development of our graduate students are research staff, administrative staff, and faculty. The scope of our collective knowledge and the global impact of the work represented in the department is simply amazing.

Ours is a department that recognizes, celebrates and embraces diversity in all forms, recognizing that our work is made more creative, novel and impactful though diversity. While we aren't perfect, we strive to talk openly about and grapple honestly with issues of diversity, inclusion and equity. The result is an environment where every student, staff, and faculty can be themselves and bring their own authentic self to our discipline. It is our commitment to each other that truly sets us apart.

What will you make of your time in our graduate program? There will be classes to take and thesis research to undertake, but graduate school is about much more. You will have opportunities to hone your written and oral communication skills, to work internationally or in a commercial setting through our internship program, discover your inner teacher, and so much more. This is a time of your life when you will forge lifelong friendships, to grow and develop personally and professionally. You should seize every opportunity to take full advantage of your time in our graduate program. Figure out how to have fun while engaging in your studies! If you can do this, you will be well prepared for whatever lies beyond grad school.

I look forward to getting to know each one of you over the coming months. Please feel free to reach out if there is anything I can do to help make your graduate program experience the best it can be.

Welcome to our graduate program. We are glad you are here!



Ruth Dill-Macky
Professor & Interim Head

Department of Plant Pathology at The University of Minnesota

Mission Statement

The mission of the Department of Plant Pathology is education, research, and outreach focused on plant diseases and the biology of plant-microbe interactions to ensure sustainability of agricultural, forest, and natural ecosystems for the benefit of society.

Expanded Mission - Plant Pathology

The mission of the Department of Plant Pathology is to serve the people of the State of Minnesota, and where possible citizens of other states and nations in the diagnosis, understanding, management, and control of plant diseases caused by biotic and abiotic agents, and the deterioration of plant products. The Department also carries on broad-based, fundamental investigations at the practitioner and theoretical level of plant pathogenic and related agents, and their by-products, which affect human endeavors related to food and fiber production and utilization. The beneficial use and genetic modification of plants when related to disease resistance is within the mission of the Department.

The mission is accomplished by research, by extending information to clientele through a variety of methods, and by the formal teaching of undergraduate and graduate courses in plant disease, disease control and management, disease theory at all levels of biological organization from molecular to populations, and plants pathogenic and related agents (including fundamental materials related to mycology, plant virology, plant bacteriology, plant nematology and other biotic agents as well as abiotic agents of plant disease).



Brief History of University of Minnesota Plant Pathology

By Professor Richard Zeyen

Plant Pathology at the University of Minnesota celebrated its Centennial (100th birthday) in 2007. This Department has a rich, impressive history developed by serving the plant health needs of Minnesota and extending this knowledge nationally and internationally. Its talented faculty, staff, and alumni, although little-known within the University of Minnesota, are recognized worldwide for their application and integration of scientific principles to the problem of producing disease-resistant, highly productive important food plants, for preserving genetic diversity of these plants, and for their humanitarian efforts to reduce world hunger and combat rural poverty. The alumnus Norman Borlaug perhaps best exemplifies them and their efforts. Norman Borlaug is one of only five people to have received the Nobel Peace Prize, the Presidential Medal of Freedom and the Congressional Gold Medal. He shares this honor with Mother Teresa, Martin Luther King, Nelson Mandela, and Elie Wiesel.

In 1907 the University of Minnesota, with support from flour milling interests powered by the falls of Saint Anthony on the Mississippi river, the railroad industry and the United States Department of Agriculture, formed the predecessor to the current Department of Plant Pathology. It was the “Division of Vegetable Pathology and Botany (agricultural)” and was housed in the College of Agriculture on the Saint Paul Campus. It was a response to devastating wheat stem rust epidemics, especially the epidemic of 1904.

Early department faculty, students, and alumni were renowned contributors to the science, theory, and practice of plant pathology. In particular, they excelled at research into microbial variability and adaptability. They specialized in the understanding and use of genetic control of plant diseases. Minnesota discoveries like “physiological races” for rusts and other biotrophic fungi led to the gene-for-gene theory by the alumnus H.H. Flor. Gene-for-gene was put forward for understanding the interactions of fungal races and plant resistance genes. Minnesota truly was the “Mecca” of understanding microbial variability and the genetic control of plant diseases.

Minnesota has one of the longest-established, broadest-ranging, and most successful graduate education programs in Plant Pathology in the world. The first PhD degree involving plant disease at Minnesota was awarded in 1905 (Edward M. Freeman, PhD). This was two years before the department’s official inception. Freeman was then appointed head of the fledgling Vegetable Pathology and Botany Department. Since 1907, thousands of students and post-graduate visitors from all parts of the world have taken part in graduate education in Plant Pathology at Minnesota. Through 2011, a total of 442 PhD and 431 MS degrees in Plant Pathology were awarded. Stability, a sense of unity and tradition, written guidelines, graduate student offices, and experience in mentoring and advising sustain excellence and pride in the Plant Pathology Graduate Program.

For more historical perspectives please see the Department of Plant Pathology’s web page and [The Living Legacy Project](#).

Campus History and Information

The University of Minnesota was chartered in 1851, seven years before the Territory of Minnesota became a state. It began as a preparatory school, was beset by financial crises during its early years, and was forced to close during the Civil War. In 1869, the University reopened its doors with nine faculty members and 18 students. Two students graduated at the University's first commencement in 1873. The first PhD was awarded in 1888 and the Graduate School celebrated its 100th anniversary during the 1987-88 academic year.

Today the University is one of the largest in the US, with approximately 53,000 students in its degree-granting colleges and schools, and more than 17,000 in Continuing Education and Extension. The main campus is in Minneapolis (East Bank) which along with the Minneapolis West Bank and St. Paul campuses, are known collectively as the Twin Cities campus.

[The University of Minnesota System](#) is one of the most comprehensive in the nation, with offerings to meet the interests of every student and the changing needs of our society. We're proud of our land-grant mission of world-class education, groundbreaking research, and community-engaged outreach, and we are unified in our drive to serve Minnesota.



The Department of Plant Pathology

Facilities and Service

The Department of Plant Pathology is located in Borlaug Hall, Christensen Laboratory, and Stakman Hall on the Saint Paul Campus of the University of Minnesota. The Department's Administrative Office is located in 495 Borlaug Hall.

Departmental Communications - Departmental announcements, seminars, meetings, social activities, and other important items are typically disseminated in the form of an email. Email is the official means of communication at the University of Minnesota.

(PLPA-GRADS@umn.edu) This listserv is used by individual graduate students as a vehicle for communication to their peers related to research, announcements, professional development opportunities, and other work or research-related items.

Departmental Conference Rooms: 491 Borlaug Hall, 355 Borlaug Hall and 302 Stakman Hall. These rooms are scheduled for meetings, classes, seminars, and any other appropriate gathering. Reservations to use the conference rooms for a specific date and time can be made using Google Calendar. There is a student lounge/study area and a small kitchen in room 403 Stakman Hall (Legacy Lounge) with a refrigerator, microwave, and sink for general use. This room is first come, first serve.

Job Book - "Job Book Online Database" folder kept in the PLPA Google Drive. The information includes job listings from the Career Services in the College of Food, Agricultural and Natural Resource Sciences, US Department of Agriculture, and various post-doctoral and faculty positions available at other institutions.

PLPA Student/Staff Faculty Directory - A listing of all Plant Pathology personnel is included in this directory.

Plant Sciences Subject Librarian, Kristen Cooper - Kristen's office is located in 85 Magrath and she can be reached at coope377@umn.edu. If you have any questions about locating or using resources, library services, or any other information related questions please let her know. She is here to help!

Security - Campus buildings are open to the public during business hours and are locked on evenings and weekends. After hours cardkey access for specific buildings can be set-up on your UCard by the PLPA administrative staff. The autoclave room in 290 Borlaug Hall requires 24/7 cardkey access which is also set-up on your UCard.

University and Saint Paul Campus Facilities, Services and Student Resources

[Directory - University of Minnesota](#) - The directory can be used to find various departments, services and individuals.

[Disability Resource Center](#) - The Disability Resource Center (DRC) works in partnership with students, faculty, staff, and guests of the University to eliminate or minimize barriers and facilitate inclusion on campus.

[Graduate Assistant Employment Office](#) has been established to provide services for individuals functioning both as students and as University employees.

[Graduate Assistant Health Insurance](#) - You qualify for enrollment in the Graduate Assistant Health Insurance Plan if your employment hours meet a minimum 25% appointment (at least 195 hours per semester). You are also eligible to enroll your dependents for dependent health insurance under the same plan.

[Graduate Student Housing Options](#)

[Graduate & Professional Student Advising Initiative](#) - Supporting the Academic and Professional Development of Graduate and Professional Students.

[Best Advising Practices: Strategies for Graduate Student Success](#)

[Graduate Student Services and Progress \(GSSP\)](#) - The Graduate Student Services and Progress (GSSP) office serves as the primary contact point for graduate students after admission and initial registration.

[Information Technology for Students](#) - Even before you arrive on campus, you can set up your University account and start using University technology resources and services.

[International Student and Scholar Services](#) - Counseling and advisory services dedicated to serving the University of Minnesota's international community.

[One Stop](#) - One Stop provides student information regarding registration, records, financial aid, billing, payment, and veterans benefits.

[Parking & Transportation Services](#) - 300 Transportation & Safety Building, 511 Washington Avenue S.E. Minneapolis, MN 55455 Phone: 612-626-7275 Email: pts@umn.edu

[Printing](#) - CFANS student computer labs are equipped with printers for student use. Students must use their UCards to release printing jobs from a print-release station attached to the printers.

[Student Conflict Resolution Center](#) offers informal conflict resolution services to resolve students' university-based problems and concerns. Ombuds can provide confidential, impartial, and informal options.

[UCard - Official UMN ID Card](#) - Your UCard is your University of Minnesota Student ID card.

Libraries

The University of Minnesota-Twin Cities

ST. PAUL CAMPUS

[Natural Resources Library](#)

[Veterinary Medical Library](#)

[Magrath Library](#)

MINNEAPOLIS CAMPUS

[Bio-Medical Library](#)

[Walter Library](#)

[Wilson Library](#)

[Anderson Library](#)



University Health & Wellness Services and Resources

[Boynton Health](#) - Boynton clinic offers a wide variety of public health and health promotion programs and comprehensive health care services, including primary care, pharmacy, mental health, urgent care, dental care, eye care, STI and HIV testing, nutrition services, flu clinics, travel medicine, and more.

[Department of Public Safety/University of Minnesota Police Department](#) - The Department of Public Safety has three departments dedicated to campus safety. The Public Safety Emergency Communications Center (PSECC) is a 911 dispatch and monitoring center. University Security is a uniformed security department that focuses on safety escorts and providing security services. The University of Minnesota Police Department is a state licensed police department.

[Disability Resource Center](#) - The Disability Resource Center (DRC) works in partnership with students, faculty, staff, and guests of the University to eliminate or minimize barriers and facilitate inclusion on campus. This includes consulting, determining and implementing accommodations, and supporting meaningful physical and technological access.

[Graduate Assistant Health Insurance](#) - You qualify for enrollment in the Graduate Assistant Health Insurance Plan if your employment hours meet a minimum 25% appointment (at least 195 hours per semester). You are also eligible to enroll your dependents for dependent health insurance under the same plan.

[Emergency Financial Assistance and Resources](#)- Apply for emergency grants for unexpected expenses and explore resources, such as housing assistance and the Nutritious U pantry.

[Student Mental Health](#) - As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. University of Minnesota services are available to assist you with addressing these and other concerns you may be experiencing. [Boynton Health Mental Health Services](#) and [Student Counseling Services](#)

[Student Counseling Services](#) - Our vision is a university where all students are empowered to reach their personal, academic, and career goals. We promote student success by helping you with mental health and life concerns; learning and academic skills challenges; career uncertainty; Faculty/staff - student communication. Minneapolis campus: 109 Eddy Hall and **St. Paul campus:** 199 Coffey Hall Phone: 612-624-3323.

[University Recreation & Wellness](#) - A RecWell membership provides you access to several facilities, programs, and services on campus, including gyms, pools, fieldhouses, group classes and training, and more.

[University of Minnesota Dining Services](#) -Explore on-campus dining locations and options.



Safety Training

The University of Minnesota and the Department of Plant Pathology is committed to providing a safe work environment for all faculty, staff, students, and visitors. To satisfy both University regulations and legal requirements, your supervisor will provide you with information on the safety training you will need. There will also be project-specific training needed.

Visit the [University Health and Safety Research Lab Safety Training Requirements](#) to learn more about safety training requirements.

Each department has a Department Safety Officer (DSO) to coordinate and update training. Grace Anderson serves as the DSO for Plant Pathology.

In order to work in any laboratory at the University, you must complete online training:

- [Chemical Safety](#)
- [Introduction to Research Safety](#)

In addition, there is required training for anyone who spends any amount of time in the field. [Click here to register for the training for agricultural field and plot workers.](#)

Complete these online training sessions **before** you begin work in your laboratory.

All training must be documented. Documentation will be automatically entered into an employee's employee record for University Health and Safety whether in person or online. Employees may view their training record and any self-reported training in the [Twin Cities Employee Center Training Hub](#).

Training Hub is the University of Minnesota's system for required and optional training. Anyone affiliated with the University of Minnesota can use this system to view and track their training.

- [How To View your Training History](#)
- [How To Record your Training Completion](#)

If you have any questions, feel free to contact Grace Anderson, Research Support Specialist, at ande3314@umn.edu.



Graduate Study in Plant Pathology: Policies and Guidelines

Summary for New Students in Plant Pathology

The Department of Plant Pathology offers graduate majors leading to the Master of Science (MS) and Doctor of Philosophy (PhD) degrees. In addition, the Department offers the MS or PhD degree with an emphasis in Molecular Plant Pathology. Students in the molecular track will enhance their ability to design and use molecular approaches to investigate plant disease and disease resistance, increase their knowledge of basic science, and explore emerging strategies for disease control. All students entering the MS or PhD programs are expected to have a strong background in basic sciences. Graduate education is designed to help students learn the scientific discipline of Plant Pathology, develop independent and team research skills, and develop communication skills needed by professional scientists. Students seeking experience in teaching and extension activities will find opportunities within and external to the curriculum.

Graduate students select a Plant Pathology graduate faculty advisor who assists them in forming an advisory committee appropriate to their course of study and thesis research project. The selection of a thesis research project for MS and PhD degree students is often based upon the research interests of the faculty advisor and funding opportunities.

Prerequisites and Admission Status

Master's degree applicants must have a sound college background in the basic biological and physical sciences and mathematics, including 35 semester credits in biology with at least one course in each of the following areas: botany, zoology, genetics, plant physiology, and microbiology. Applicants must also have completed at least one course in inorganic chemistry, organic chemistry, biochemistry, and physics. If deficiencies exist in the prerequisites, they must be corrected during the first year of the graduate programs. These courses cannot be counted as part of the degree program.

All students accepted into the department with a BS degree are admitted initially into the MS degree program. Doctoral program applicants must satisfy all the prerequisites for the MS degree program in Plant Pathology or have a Master's degree in Plant Pathology or in a field of natural science. After a **minimum of two semesters**, exceptionally well qualified individuals may petition to change their degree status to a doctoral program. See [Change of Status policy](#) for details.

The Master's (MS) Degree Program

The Department of Plant Pathology offers graduate majors leading to the Master of Science (MS) through two degree options, the Master's Thesis (Plan A) Degree or the Master's Capstone (Plan B) Degree. The Master's Thesis Plan is a traditional research thesis based program intended for students that may be planning to continue to a PhD program. The Master's Capstone Degree is intended for students that are not planning on continuing to a PhD program. It involves more coursework and less independent research than the thesis plan and is well suited for students that are seeking professional positions that do not require a PhD. (Examples of positions include technician, crop consultant, forest health specialist, etc.)

[University of Minnesota Performance Standards and Progress](#)

Registration Requirement for the Master's Degree – Students must be registered every semester to maintain active status. Full time registration is 6-14 credits/semester. Whenever possible, students supported by an assistantship, fellowship or scholarship should register for a full load of 14 credits every spring and fall semesters using thesis credits (PLPA 8777) or Capstone Project (PLPA 8333) to meet this requirement. Do not exceed 14 credits/semester, or you will be responsible for the additional expense.

Master's degree students are required to complete at least 60 percent of the coursework for their official degree programs (excluding thesis credits) as registered University of Minnesota graduate students. With approval of the advisor, Director of Graduate Studies in the major (and Director of Graduate Studies in the minor, if the courses are for a designated minor), and GSSP, transfer coursework may make up the remaining 40 percent (maximum) of the degree coursework (see Transfer of Credits for the Master's Degree below).

[Master's Thesis \(Plan A\) Degree Completion Step](#) and [Master's Capstone \(Plan B\) Degree Completion Steps](#) - In order to receive your degree, each step must be completed. Students must maintain active student status by registering every fall and spring semester until your degree is awarded. Contact your program advisor for program-specific requirements and deadlines.

Submit Graduate Planning & Audit System Planner (GPAS)

[Student Guide to GPAS Planner](#)

- Student initiates GPAS submission
- Submit during first semester of second academic year, or at least one semester prior to completing your degree
- Students with minor must submit minor GPAS to minor department for approval
- GPAS must be submitted and approved before student can assign members to final exam committee; download graduation packet; or submit application for degree.

[Assign/Update Master's Final Committee](#) Students initiate a workflow form to assign members to your master's final examination committee or to update members on an existing committee.

Final examination committee - The [final examination committee](#) must consist of at least three members, including the advisor/s. All members of the committee and the student must participate in the final examination.

- At least one member must represent a field outside the student's major field.
- If the student has a declared minor(s), the outside member(s) must be from the minor field(s).
- Members cannot satisfy the requirement with respect to more than one field.
- Advisor must represent the major field on the examination committee
- Advisor may serve as chair for the final examination
- Co-advisor may represent major or outside/minor field
- Co-advisor may serve as chair for the final exam
- Assigned committee members also serve as thesis reviewers for the Plan A.

Please initiate this **committee assignment and launch your electronic form** only after you've finalized your committee member selections and **at minimum one month** prior to your exam date. Once submitted, your form will be routed to your advisor, director of graduate studies (DGS), and college for review and approval. Email confirmation will be sent to your University email upon final approval.

Advisor assignments – The GPC (Graduate Program Coordinator) will complete the Graduate Student Advisor Assignment form to assign or update advisor assignments for graduate students. If your advisor changes, please contact the DGS or GPC to report the change.

A student is required to have one primary advisor (from the primary graduate program), whose name appears on the student's transcript, and may have one or more co-advisors who have advising responsibilities but whose names do not appear on the transcript.



Performance Level Standards and Requirements

1. Continuous Enrollment: Students are required to enroll every semester (fall and spring) from the time of matriculation until degree conferral except for cases with an approved Leave of Absence on the student's record.

2. Time Limit for Earning the Master's Degree: All requirements for the master's degree must be completed and the degree awarded within five calendar years after initial enrollment in the graduate program or the more restrictive time frame specified by the program.

- Students who are unable to complete the degree within the time limits described above may, with the approval of their advisor/s and program DGS, petition the program and collegiate unit for one extension of up to 12 months. Students must submit the petition for an extension prior to the end of the term in which the time limit will expire.
- If a petition is approved, the student is notified in writing of the expectations for progress and of the expected timeline for completion and award of degree.
- If the petition is denied, the student is notified in writing that the student will be terminated from the graduate program upon expiration of the limit.
- Students who have been terminated under such circumstances may apply for readmission to the program; however, readmission is not guaranteed.

3. Minimum Grade Requirements: To remain in good academic standing, students must meet the minimum GPA requirement specified by the graduate program or 2.800 (on a 4.000 scale), whichever is higher. Students who have filed a master's degree plan must maintain a 2.800 GPA for courses included on the degree plan. Only courses with grades of A, B, C (including C-) and S may be counted toward the degree. Students who have not yet filed a degree plan should maintain an overall GPA of 2.800. Students who fall below the program's minimum GPA requirement may be terminated from the program.

4. S/N grades for courses: A minimum of 2/3 of the course credits included on a degree plan must be taken A/F.

Thesis/Capstone Advisor, Thesis/Capstone Committee, and Mandatory Meeting: All graduate students in Plant Pathology are assigned an advisor at the beginning of their graduate program and are required to select a Graduate Advisory Committee and convene a meeting of this committee by the end of the first year in residence.

Graduate Advisory Committee Requirement: All graduate students in Plant Pathology are assigned an advisor at the beginning of their graduate program and are required to select a Graduate Advisory Committee and convene a meeting of this committee by the end of the first year in residence. It is suggested that each student's Graduate Advisory Committee meet at least annually after the initial meeting to review the student's progress and to provide constructive advice on the planning, methods, analysis, and write-up of thesis research.

MS Graduate Advisory Committee: A MS student's Graduate Advisory Committee must consist of at least three members, including the advisor/s. At least two members (including the advisor) must be from the student's major field, and one member must represent a field outside the major. While strongly encouraged, membership of a student's Graduate Advisory Committee is not required to be identical to their Examining Committee (final oral examination).

Thesis Proposal (Plan A): A preliminary thesis proposal should be submitted to the Graduate Advisory Committee at its first meeting. The proposal will include a literature review, research objectives, and the proposed research approach and methods. The proposal should be considered as a working document that may be modified at a later time as deemed appropriate.

Thesis Credits (Plan A): Students must enroll for a minimum of 10 Master's thesis credits (8777) before receiving the degree. Students cannot include thesis credits in the total program credits when determining maximum transfer allowed. They also cannot transfer thesis credits from other graduate institutions, double-count thesis credits between two Master's degrees, or use thesis credits to meet the minimum major and related field coursework requirements for the degree. If possible, students should register for a full load of 14 credits every spring and fall semesters using PLPA 8777 credits to meet this requirement. For example, if you are taking for fall semester courses: PLPA 5480 (3 credits), PLPA 8102 (3 credits), and PLPA 8200 (1 credit), totaling together 7 credits, you should then register for 7 credits of PLPA 8777 to equal a total of 14 credits.

Master's Thesis (Plan A): Students must demonstrate familiarity with the tools of research or scholarship in their major field, the ability to work independently, and the ability to present the results of their investigation effectively, by completing a Master's thesis. Further information on thesis preparation is provided elsewhere in this handbook. Students are required to adhere to the [University of Minnesota formatting and submission guidelines](#). The thesis must be formatted according to University guidelines before going to your Thesis Reviewers (Plan A)/examining committee for official review to determine if the thesis is ready for final defense.

Thesis Reviewers (Plan A): The thesis is read by the entire examining committee, which is approved by the GSSP office. This examining committee consists of at least three members: two representatives from the major field and one from the minor or a related field.

To permit faculty to allocate sufficient time to read the thesis and decide whether it is ready for defense, students must notify their advisor and the other members of their final oral committee at least two weeks in advance that the thesis will be delivered on a particular date. All members of the examining committee must then have at least two weeks to read the thesis after it has been delivered. These are minimum standards.

The entire committee must be unanimous in certifying that the thesis is ready for defense, as indicated by their signatures on the Master's Reviewers Report Form (included in the Graduation Packet Request forms).

Master's Capstone Project - The capstone project could involve a smaller research project than the thesis, an extension/teaching related product, or a comprehensive literature review of plant pathology related subjects. A project proposal must be submitted to the advisor and committee **by the end of the first year in residence**. The proposal must include project subject, scope and specific format of the expected final product.

[Final Examinations](#) - Candidates for the Master's degree (Thesis and Capstone) must pass a final oral examination. The Master's Thesis final examination covers the major field and the minor or related fields, and may include any work fundamental to these fields. The Capstone final exam will be confined to the subject of the capstone project. Although it is not required to submit the non-thesis project to the Graduate School, it must be submitted to the department after successful oral defense.

The final oral for the Master's degree is conducted as a closed examination, attended by only the student and the examining committee.

Final Oral Examination Format - The final oral examination consists of a seminar in which the candidate presents the thesis or capstone project and to which the scholarly community is invited. The seminar may take place only after the thesis or capstone project has been judged ready for defense. The examination is limited to the candidate's thesis subject and relevant areas, or subject of capstone project. It will not exceed three hours (seminar and examination). A closed meeting between the candidate and the appointed examining committee immediately follows the thesis/capstone presentation.

Immediately after the examination, the candidate is excused from the room and a secret written ballot is taken before discussing the examination. Following the discussion, a second and final vote is taken.

Final examinations are coordinated by the chair of the student's examining committee. The following conditions must be met in order to allow the remote participation (e.g., telephone conference call, Zoom, etc.) by graduate examination committee members and/or the student in the doctoral preliminary oral examination, and the master's and doctoral final oral examinations. The chair of the examining committee is responsible for guaranteeing that all of the conditions outlined below have been satisfied.

Procedure Best Practices

Meeting Preparation and Planning

- **Defense Scheduling Checklist:** [use these steps](#) to set up your event.
- **Email notification:** Communications Coordinator, in conjunction with Student, is responsible for providing exam date, time, and meeting link(s) to all members of the examining committee, Director of Graduate Studies, and Student.
- **Accessibility:** Audio, visual, and text materials must be available to all participants, and necessary accommodations for any participants with disabilities must be fulfilled. Best practice: Student can send slide decks and other visual aids out at the beginning of any presentations.
- **Zoom platform:** Remote and hybrid seminars and exams will be conducted using Zoom, preferably using Ethernet for stronger connection. [Learn more about Zoom from OIT.](#)

Technical Difficulties and Potential Recessing

- **Leadership in troubleshooting:** The chair of the examining committee must recess the examination immediately if any technical problems interfere with the examination process.
- **Awareness of solutions:** The student and all committee members should be aware in advance of the potential problems that could arise in the examination, and potential solutions to these problems.

All attendees should be prepared to: exit and re-enter the Zoom meeting, mute and unmute, start and stop video, and change video or audio sources if applicable. All attendees should have access to the [UMN self-help guide for Zoom events](#).

Integrity in Examination and Voting

- **Collecting votes:** The Committee Chair is responsible for collecting votes from committee members via email in a secure, private, and timely manner.
- **Integrity of examination:** The Student is responsible for meeting academic integrity standards held by the University, and the committee is responsible for monitoring student behavior during the oral exam.

Results of Examinations

The results of the examinations are reported to the GSSP office on the Final Examination Report form (included in the Graduation Packet Request forms). A majority vote of the committee, all members voting, is required to pass the examination. A student who fails the examination may be terminated from the graduate program or may be allowed, on unanimous recommendation of the examining committee, to retake the examination, providing the reexamination is conducted by the original examining committee.



Graduate Program Requirements for Master's Degree in Plant Pathology

Thesis Plan requires a minimum of 15 course credits in plant pathology, 6 course credits in a minor or related field, and 10 thesis credits. This plan is referred to by the University as "[Plan A](#)."

- **Standard or Molecular Track:** Each student is entered into the Standard Track program; to enter the Molecular Track, please email this request to the GPC. Requirements by track vary, as shown below.
- **Final Exam:** The final exam is oral for Thesis plan.

Capstone Plan requires a minimum of 25 course credits, including between 3-10 PLPA Capstone Project credits, and 6 course credits in a minor or related field. This plan is referred to by the University as "[Plan B](#)."

- **Choosing the Capstone Plan:** Each student is entered into the Thesis Plan program; to enter the Capstone Plan, please email this request to the GPC.
- No Molecular Track is available on the Capstone plan.
- **Final Exam:** The final exam is oral for Capstone plan.

Minor Requirements: Minor for students majoring in other fields is a minimum of 6 credits for a Master's minor. The department offering the minor should be consulted for exact requirements.

8000 Level Requirement: All students (MS and PhD) in plant pathology who enroll in courses with dual designations (5000/8000) are required to enroll at the 8000 level.

Approved course alternatives: Should a required course not be on-offer for an extended period, the department will approve an alternative course for degree completion requirements. Reach out to the Graduate Program Coordinator for approval.

Plant Pathology Master's Thesis Program: Standard Track

Required Coursework:

- PLPA 5480 Principles of Plant Pathology **3 credits**
- Take if an introductory plant pathology course has not previously been taken, see DGS or GPC with questions.
- PLPA 8104 Plant Virology **2 credits**
 - PLPA 8105 Plant Bacteriology **3 credits**
 - PLPA 8200 Plant Pathology Seminar **1 credit**
 - PLPA 8123 Research Ethics in Plant and Environmental Sciences **0.5 credit**
 - PLPA 8005 Supervised Teaching Experience **2 credits**
- One semester in-classroom Teaching Experience (TE)
- Workshop on teaching methods (see TE Coordinator or GPC for more information)

Master's Thesis requires 10 thesis credits (PLPA 8777).

Electives: Students are required to enroll in a minimum of 5 credits in elective courses chosen in consultation with the director of graduate studies, advisor, and graduate advisory committee: Students can use the [Plant Pathology course offerings website](#) to plan their elective courses.

Outside Coursework: Examples of suggested courses for the supporting field required 6 credits, courses chosen in consultation with the director of graduate studies, advisor, and graduate advisory committee:

- AGRO 8241 Molecular and Cellular Genetics of Plant Improvement **3 credits**
- BioC 5361 Microbial Genomics and Bioinformatics **3 credits**
- EEB 5221 Molecular and Genomic Evolution **3 credits**
- GCD 5036 Molecular Cell Biology **3 credits**

Plant Pathology Master's Thesis Program: Molecular Track

To emphasize molecular plant pathology, students must complete the following course requirements.

Required Coursework:

- PLPA 5480 Principles of Plant Pathology **3 credits**
- PLPA 8103 Molecular Plant-Microbe Interactions **3 credits**
- PLPA 5300 Current Topics in Molecular Plant Pathology **1 credit**
- PLPA 8200 Plant Pathology Seminar **1 credit**
- PLPA 8123 Research Ethics in Plant and Environmental Sciences **0.5 credit**
- PLPA 8005 Supervised Teaching Experience **2 credits**
One semester in-classroom Teaching Experience (TE)
Workshop on teaching methods (See TE Coordinator or GPC for more information)

Master's Thesis requires 10 thesis credits (PLPA 8777).

Electives: Students are required to enroll in a minimum of 5 credits (8 maximum) in elective courses chosen in consultation with the director of graduate studies, advisor, and graduate advisory committee: Students are can use the Plant Pathology course offerings website to plan their elective courses.

Outside Coursework: Examples of suggested courses for the supporting field required 6 credits, courses chosen in consultation with the director of graduate studies, advisor, and graduate advisory committee:

- AGRO 5121 - Applied Experimental Design **4 credits**
- AGRO 5431 - Applied Plant Genomics and Bioinformatics **3 credits**
- BIOL 5272 - Applied Biostatistics **4 credits**
- SOIL 5611 - Soil Biology and Fertility **4 credits**

Plant Pathology Master's Capstone Program

Required Coursework:

- PLPA 5480 Principles of Plant Pathology
Take if an introductory plant pathology course has not previously been taken, see DGS or GPC with questions.
- PLPA 8104 Plant Virology **2 credits**
- PLPA 8105 Plant Bacteriology **3 credits**
- PLPA 8200 Plant Pathology Seminar **1 credit**
- PLPA 8123 Research Ethics in Plant and Environmental Sciences **0.5 credit**
- PLPA 5300 Current Topics in Molecular Biology **2 credits**
- PLPA 8005 Supervised Teaching Experience **2 credits**
One semester in-classroom Teaching Experience (TE) **2 credits**
- Workshop on teaching methods (See TE Coordinator or GPC for more information)

Master's Capstone requires 3-10 credits of Plant Pathology Project (PLPA 8300), in consultation with the advisor and committee.

Electives: Students are required to enroll in a minimum of 5 credits in elective courses chosen in consultation with the director of graduate studies, advisor, and graduate advisory committee. Capstone students must select additional electives to complete minimum credit requirements. For example, if a student takes the minimum requirement of 3 credits of PLPA 8300, then they would need to take 12 elective course credits, not just 5. Students are can use the [Plant Pathology course offerings website](#) to plan their elective courses.

Outside Coursework: Examples of suggested courses for the supporting field required 6 credits, courses chosen in consultation with the director of graduate studies, advisor, and graduate advisory committee:

- AGRO 8241 Molecular and Cellular Genetics of Plant Improvement **3 credits**
- BioC 5361 Microbial Genomics and Bioinformatics **3 credits**
- EEB 5221 Molecular and Genomic Evolution **3 credits**
- GCD 5036 Molecular Cell Biology **3 credits**

PLPA 8200 Plant Pathology Seminar: All MS students will prepare and deliver a literature-based seminar on a topic unrelated to the student's thesis research. The requirement of a literature-based seminar provides an opportunity to broaden perspectives in our field and explore topics of interest outside the student's research realm.

Required Teaching Experience: All MS students will complete a one semester Teaching Experience in a Plant Pathology (PLPA designator) course or other course approved after agreement among the student, the student's advisor, and the Teaching Experience coordinator. See Graduate Program Coordinator (GPC) with questions.

Register for PLPA 8005 Supervised Teaching Experience (2 credits), and enroll in a workshop or seminar on teaching methods. A permission number will be given to register for PLPA 8005. Provide GPC with workshop/ seminar details and proof of completion and completion of the workshop/seminar requirement will be noted on your GPAS.

Workshops and seminar activities are offered through the University of Minnesota's Center for Educational Innovation (including for-credit courses, individual consultations, training, workshops, and online resources) See [Center for Education Innovation \(CEI\)](#) for a schedule of events.

International students are encouraged to access the diverse on-campus opportunities for enhancing their English language skills prior to completing the Teaching Experience. Non-native English speaking students with noted English Language Proficiency (ELP) deficiencies, low TOEFL or ELP rating of rating greater than ELP 1, should plan on taking or retaking the SETTA (Spoken English Test for Teaching Assistants). To learn more about the SETTA and how to schedule please visit [Spoken English Test for Teaching Assistants](#).



The Doctoral Degree Program

[University of Minnesota Performance Standards and Progress](#)

The Doctor of Philosophy degree is awarded chiefly in recognition of high attainment and ability in a special subject field as demonstrated by passing the required examinations covering both a candidate's general and special subject fields, and by preparing and successfully defending a thesis based on original research that makes a significant contribution to knowledge in the student's field.

Registration Requirements for the Doctoral Degree – Whenever possible, students should register for a full load of 14 credits every spring and fall semesters. Do not exceed 14 credit maximum/semester.

Advisor assignments – The GPC (Graduate Program Coordinator) will complete the Graduate Student Advisor Assignment form to assign or update advisor assignments for graduate students. If your advisor changes, please contact the DGS or GPC to report the change.

A student is required to have one primary advisor (from the primary graduate program), whose name appears on the student's transcript, and may have one or more co-advisors who have advising responsibilities but whose names do not appear on the transcript.

[Doctoral Degree Completion Steps](#) - In order to receive your degree, each step must be completed. You must maintain active student status by registering every fall and spring semester until your degree is awarded. Contact your program advisor, Director of Graduate Studies, or Graduate Program Coordinator for program-specific requirements and deadlines.

Submit Graduate Planning & Audit System Planner (GPAS)

[Student Guide to GPAS Planner](#)

- Student initiates GPAS submission
- Submit at least one semester prior to preliminary oral exam
- Students with minor must submit minor GPAS to minor department for approval
- GPAS must be submitted and approved before student can:
 - Assign members to preliminary oral exam committee
 - Schedule preliminary oral exam
 - Assign members to final exam committee
 - Download graduation packet
 - Submit application for degree

[Doctoral Thesis Credits \(8888\)](#) Doctoral students are required to enroll for a minimum of 24 doctoral thesis credits while completing their research.

The Department of Plant Pathology allows doctoral students who have not yet passed the preliminary oral exam to register for doctoral thesis credits (PLPA 8888) without completing any pre-thesis credits (PLPA 8666). An example: if you are planning for fall semester to take PLPA 5480 (3 credits), PLPA 8102 (3 credits), and PLPA 8200 (1 credit), totaling together 7 credits, you may then register for 7 credits of PLPA 8888 to equal a total of 14 credits. The maximum allowable credit number is 14 credits. See the Graduate Program Coordinator (GPC) with questions.

Minor Field or Supporting Program Work – For the doctoral degree, a minimum of 12 credits must be completed in the minor field or supporting program. With a traditional minor, this work is in a single field related to the major; the minor field must be declared before the student passes the preliminary oral examination. If the student chooses a supporting program, it must be composed of a coherent pattern of courses, possibly embracing several disciplines. The department offering the minor should be consulted for exact requirements, and GPAS submission is required for a minor.

Performance Level Standards and Requirements:

1. Continuous Enrollment - Students are required to enroll every semester (fall and spring) from the time of matriculation until degree conferral except for cases with an approved Leave of Absence on the student's record.

2. Time Limit for Earning the Doctoral Degree - All requirements for the doctoral degree must be completed and the degree awarded within eight calendar years after initial enrollment to the graduate program or the more restrictive time frame specified by the program.

A. Students who are unable to complete the degree within the time limits described above may, with the approval of their advisor/s and program DGS, petition the program and collegiate unit for one extension of up to 24 months. Students must submit the petition for an extension prior to the end of the term in which the time limit will expire.

- i. If a petition is approved, the student is notified in writing of the expectations for progress and of the expected timeline for completion and award of degree.
- ii. If the petition is denied, the student is notified in writing that the student will be terminated from the doctoral program.



B. Under extraordinary circumstances, students may file a second petition for an additional extension of up to 24 months; however such petitions after the initial extension must be reviewed and approved by the student's advisor/s, program DGS, and Vice Provost and Dean of Graduate Education. Students must submit the petition for an extension prior to the end of the term in which the initial extension will expire.

- If a petition is approved, the student is notified in writing of the expectations for progress and if the expected timeline for completion and award of degree
- If the petition is denied, the student is notified in writing that the student will be terminated from the doctoral program
- Students who have been terminated under such circumstances may apply for readmission to the program; however, readmission is not guaranteed.

3. Minimum Grade Requirements - To remain in good academic standing students must meet the minimum GPA requirement specified by the graduate program or 3.000 (on a 4.000 scale) for courses being applied toward program requirements, whichever is higher. Students who have filed a doctoral degree plan must maintain a 3.000 GPA for courses included on the degree plan. Only courses with grades of A, B, C (including C-) and S may be counted toward the degree. Students who fall below the program's minimum GPA requirement may be terminated from the program.

4. S/N grades for courses - A minimum of 2/3 of the course credits included on a degree plan must be taken A/F.

Preliminary Written Examination - All doctoral students are required to pass a written examination in the major field. This examination covers all work completed in the major field and may include any work fundamental to this field. The results of the examination are reported on the preliminary written examination report to be completed by the Graduate Program Coordinator.

Official Doctoral Candidacy - Doctoral candidacy is established when a student passes the preliminary oral examination (this includes a grade of "pass with reservations").

Preliminary Oral Examination - Students take the preliminary oral examination after completing a substantial part of the coursework and passing the preliminary written examination, but before writing the dissertation.

Preliminary Oral Examining Committee - Students initiate the electronic workflow to make committee assignments and updates. Launch the [Submit/Update Prelim Oral Exam Committee](#) to assign members to your doctoral preliminary oral examination committee, doctoral final oral examination committee, or to update members on an existing committee. Please launch this form only after you've finalized your committee member selections and at minimum one month prior to your exam date.

Once submitted, the electronic form will be routed to your advisor, director of graduate studies (DGS), and college for review and approval. Email confirmation will be sent to student U of M email upon final approval. Please do not submit duplicate requests.

Doctoral Prelim Oral Examination Committee must consist of at least four members, including the advisor/s. All members of the committee and the candidate must participate in the preliminary oral examination.

- At least three members (including the advisor) must be from the student's major field.
- At least one member must represent a field outside the major
- If the student has declared a minor, at least one member must represent the minor field.
- Members cannot satisfy the requirement with respect to more than one field
- Advisor must represent the major on the preliminary oral and final oral committees.
- Advisor may serve as chair for the preliminary oral examination.
- Co-advisor may represent the major or the minor/outside field on the preliminary oral and final oral committees.
- Co-advisor may serve as chair for the preliminary oral examination.

[Scheduling the Preliminary Oral Examination](#) – Students must schedule the preliminary oral examination with Graduate Student Services and Progress (GSSP) online as soon as the dates are set, but **no later than one week prior to the examination**. Once you schedule online, a confirmation email will be sent to your UMN email account.

The following requirements must be met with GSSP before the preliminary oral examination can be authorized:

- You must hold active status at the time of the examination.
- Your GPAS Planner must be approved and on file with GSSP. (Note: minors must be declared and GPAS approved prior to the preliminary oral examination.)
- You must have an approved preliminary oral examination committee on file with GSSP.
- The results of your preliminary written exam (reported by your program to GSSP) must be on file with GSSP.

Preliminary Oral Examination Content and Outcome – All doctoral students are required to pass an oral examination in the major field. The preliminary oral examination covers the major field, the minor field or supporting program, and any work fundamental to these areas, including possible plans for thesis research. Unlike the final oral examination, the preliminary oral is conducted as a closed examination, attended by only the student and the examining committee. The maximum time for the oral exam is 3 hours.

Doctoral Thesis – The thesis must demonstrate the student's originality and ability for independent investigation, and the results of the research must constitute a contribution to knowledge. Moreover, the thesis must exhibit the student's mastery of the literature of the subject and familiarity with the sources. The subject matter must be presented with a satisfactory degree of literary skill. Students are required to adhere to the [University of Minnesota formatting and submission guidelines](#). The thesis must be formatted according to University guidelines for delivery to Thesis Reviewers to determine if the thesis is ready for final defense.

Graduate Advisory Committee Requirement:

All graduate students in Plant Pathology are assigned an advisor at the beginning of their graduate program and are required to select a Graduate Advisory Committee and convene a meeting of this committee **by the end of the first year** in residence. It is suggested that each student's Graduate Advisory Committee meet at least annually after the initial meeting to review the student's progress and to provide constructive advice on the planning, methods, analysis, and write-up of thesis research.

PhD Graduate Advisory Committee: A PhD student's Graduate Advisory Committee must consist of at least four members, including the advisor/s. At least three members (including the advisor) must be from the student's major field, and one member must represent a field outside the major. While strongly encouraged, membership of a student's Graduate Advisory Committee is not required to be identical to their Examining Committee (final oral examination).

Preliminary Thesis Proposal: The proposal will include a literature review, research objectives, and the proposed research approach and methods. The proposal should be considered as a working document that may be modified at a later time as deemed appropriate.



Delivery of the Thesis to Thesis Reviewers – To permit faculty to allocate sufficient time to read the thesis and decide whether it is ready for defense, students must notify their advisor and other members of the final oral committee **at least two weeks in advance** that the thesis will be delivered on a particular date. All members of the examining committee must then have at least two weeks to read the thesis after it has been delivered.

When signing the PhD Thesis Reviewers Report form, the reviewers have three options: the thesis is acceptable for defense as presented; the thesis is acceptable for defense with minor revisions; or the thesis requires major revisions and is not acceptable for defense as presented.

The reviewers must be unanimous in certifying that the thesis is ready for defense, whether as presented or with minor revisions.

[Final Oral Examination](#) – All doctoral students are required to successfully defend their thesis in a final oral examination and graduate within five calendar years after passing the preliminary oral examination. To be eligible for the final oral examination, a student must have:

- Completed all work on the official doctoral degree plan form;
- Passed both the written and oral preliminary examinations;
- Maintained active status;
- And satisfied the thesis credit requirement.
- Additionally, the thesis must have been certified by the readers as ready for defense.

[Scheduling the Final Oral Examination](#) - Doctoral students schedule the final oral examination (final defense) with Graduate Student Services and Progress (GSSP) online as soon as the dates are set, but no later than one week prior to the examinations. The student is responsible for launching the electronic workflow to schedule the exam. Once you schedule through the workflow process, a confirmation email will be sent to your UMN email account.



At least one week prior to the exam, you will receive an email from GSSP with information regarding outstanding oral exam requirements, how to fulfill the requirements, and or the status of the form. GSSP verifies that all examination requirements have been completed before releasing a doctoral oral exam form.

The Graduate Program Coordinator will be copied on all of the above-mentioned emails so that the graduate program office is informed of the Graduate School's review and authorization of their student's final oral exam.

A minimum of 10 weeks must intervene between the preliminary oral and the final oral examinations.

[Doctoral Final Oral Examination Committee](#) must consist of at least four members, including the advisor/s. All members of the committee and the candidate must participate in the final oral examination.

- At least three members (including the advisor) must be from the student's major field.
- At least one member must represent a field outside the major
- If the student has declared a minor, at least one member must represent the minor field.
- Members cannot satisfy the requirement with respect to more than one field.
- Committee is not required to include the same members who served on the prelim oral committee.
- The chair of the doctoral final oral examination committee may not be the candidate's advisor or co-advisor.
- The chair must be a senior member or affiliate senior member of the graduate faculty and may be from either the major field, the minor field, or supporting program.
- Co-advisor may represent the major or the minor/outside field on the preliminary oral and final oral committees.



All committee members must be present at the examination; the absence of any member results in an invalid examination. The following conditions must be met in order to allow remote participation (e.g., telephone conference call, Skype, etc.) by graduate examination committee members and/or the student in the doctoral preliminary oral examination, and the master's and doctoral final oral examinations. The chair of the examining committee is responsible for guaranteeing that all of the conditions outlined below have been satisfied.

Final examinations are coordinated by the chair of the student's examining committee. The following conditions must be met in order to allow the remote participation (e.g., telephone conference call, Zoom, etc.) by graduate examination committee members and/or the student in the doctoral preliminary oral examination, and the master's and doctoral final oral examinations. The chair of the examining committee is responsible for guaranteeing that all of the conditions outlined below have been satisfied.

Procedure Best Practices

Meeting Preparation and Planning

- **Email notification:** Communications Coordinator, in conjunction with Student, is responsible for providing exam date, time, and meeting link(s) to all members of the examining committee, Director of Graduate Studies, and Student.
- **Accessibility:** Audio, visual, and text materials must be available to all participants, and necessary accommodations for any participants with disabilities must be fulfilled. Best practice: Student can send slide decks and other visual aids out at the beginning of any presentations.
- **Zoom platform:** Remote and hybrid seminars and exams will be conducted using Zoom, preferably using Ethernet for stronger connection. [Learn more about Zoom from OIT.](#)

Technical Difficulties and Potential Recessing

- **Leadership in troubleshooting:** The chair of the examining committee must recess the examination immediately if any technical problems interfere with the examination process.
- **Awareness of solutions:** The student and all committee members should be aware in advance of the potential problems that could arise in the examination, and potential solutions to these problems.
- **All attendees should be prepared to:** exit and re-enter the Zoom meeting, mute and unmute, start and stop video, and change video or audio sources if applicable. All attendees should have access to the [UMN self-help guide for Zoom events.](#)

Integrity in Examination and Voting

- **Collecting votes:** The Committee Chair is responsible for collecting votes from committee members via email in a secure, private, and timely manner.
- **Integrity of examination:** The Student is responsible for meeting academic integrity standards held by the University, and the committee is responsible for monitoring student behavior during the oral exam.

Final Oral Examination Format – The final oral examination consists of a seminar in which the candidate presents the thesis and to which the scholarly community is invited. The seminar may take place only after the thesis has been judged ready for defense. The examination is limited to the candidate's thesis subject and relevant areas. It will not exceed three hours. A closed meeting between the candidate and the appointed examining committee immediately follows the thesis presentation.

Immediately after the examination, the candidate is excused from the room and a secret written ballot is taken before discussing the examination. Following the discussion, a second and final vote is taken.

Reporting the Results of the Final Oral Examination – To be recommended for the award of the doctoral degree, candidates must receive a vote with no more than one dissenting member of the total examining committee. If the student has clearly passed or clearly failed the examination and all members have submitted the electronic Final Examination Report form, the report form must be submitted to the GSSP office no later than the last business day of the anticipated month of graduation.

Students will receive an email with a link to complete the Final Exam form workflow after they have scheduled their final exam and been cleared by the Office of the Registrar (OTR) to take their final exam.

The advisor should be responsible for ensuring the inclusion of appropriate modifications and required revisions, if any, in the final thesis. The final oral examination report form should not be signed and submitted to the GSSP office until all revisions have been made. Once the final report form has been returned to the GSSP office indicating that the student has either passed or failed the final oral examination, a hold is placed on the student's records to prevent further registration in the Graduate School. If the advisor indicates that the student needs additional time to make minor revisions to the thesis before it is submitted to the Graduate School, the student is permitted to register for one additional semester. Once the thesis has been submitted, no further registration in the Graduate School is permitted unless the student has been admitted to professional development status or to another major field.



Graduate Program Requirements for the Doctoral Degree in Plant Pathology

A standard track and a molecular track are offered for the doctoral degree program.

Students in the doctoral program usually spend a minimum of three years beyond the Master's degree to obtain a PhD degree. All doctoral students must fulfill curriculum requirements outlined below. Doctoral students also complete a minor field of study or supporting courses in two or more disciplines, written and oral preliminary examinations, a thesis based on original research, and an oral defense of the thesis.

The doctoral degree requires a minimum of 20 course credits in plant pathology, which may include 5000 and 8000 level courses in plant pathology or others approved by the Director of Graduate Studies taken before admission into the PhD program. In addition, students are required to complete 12 credits in a minor or supporting program, and 24 thesis credits (PLPA 8888). Upon admission, students should meet with the faculty advisor, Director of Graduate Studies, and graduate advisory committee to determine a suitable course program.

Approved course alternatives: Should a required course not be on-offer for an extended period, the department will approve an alternative course for degree completion requirements. Reach out to the Graduate Program Coordinator for approval.



Plant Pathology Standard Track Doctoral Program - Students must take the following courses (if not taken previously):

Required Coursework

- PLPA 5480 Principles of Plant Pathology (Prerequisite) **3 credits**
- (Take if an introductory plant pathology course has not previously been taken, see DGS or GPC with questions.)
- PLPA 8104 Plant Virology **2 credits**
 - PLPA 8105 Plant Bacteriology **3 credits**
 - PLPA 5444 Ecology, Epidemiology, and Evolutionary Biology of Plant-Microbe Interactions **3 credits**
 - PLPA 8103 Molecular Plant-Microbe Interactions **3 credits**
 - PLPA 8123 Research Ethics in Plant and Environmental Sciences **0.5 credit**
 - GRAD 8101 Teaching in Higher Education* **3 credits**
 - PLPA 8200 Two semesters of Plant Pathology Seminar **2 credits**
(Total including any credits taken during the MS program at the University of Minnesota)
 - PLPA 8005 Supervised Teaching Experience **2 credits**
One semester in-classroom Teaching Experience (TE)

*For students based off the Twin Cities campus, an acceptable alternative to GRAD 8101 will be taking two specific GRAD 8200 online courses:

- GRAD 8200 Teaching for Learning: An Online Course
- GRAD 8200 Practicum for Future Faculty

Outside Coursework - Examples of suggested courses for the 12 supporting field/outside coursework credits:

- AGRO 8241 Chromosomal and Molecular Genetics of Plant Improvement **3 credits**
- AnSc 5200 Statistical Genetics and Genomics **4 credits**
- BioC 5361 Microbial Genomics and Bioinformatics **3 credits**
- Csci 5481 Computational Techniques for Genomics **3 credits**
- EEB 5221 Molecular Evolution **3 credits**
- GCD 5036 Molecular Cell Biology **3 credits**
- GCD 8131 Advanced Genetics and Genomics **3 credits**
- MICa 8002 Structure, Function, and Genetics of Bacteria and Viruses **4 credits**
- AGRO 5021 Plant Breeding Principles **3 credits**
- AGRO 5431 Applied Plant Genomics and Bioinformatics **3 credits**
- BBE 5302 Biodegradation of Bioproducts **3 credits**
- PMB 5412 Plant Physiology and Development **3 credits**
- CSCI 5461 Functional Genomics, Systems Biology and Bioinformatics **3 credits**

Thesis Credits - Complete 24 doctoral thesis credits

- PLPA 8888 Doctoral Thesis Credits

Molecular Track Plant Pathology Doctoral Program - Students wishing to emphasize molecular plant pathology must complete the following course requirements (if not taken previously)

Required Coursework

- PLPA 5480 Principles of Plant Pathology (Prerequisite) **3 credits**
(Take if an introductory plant pathology course has not previously been taken, see DGS or GPC with questions.)
- PLPA 8104 Plant Virology **2 credits**
OR PLPA 8105 Plant Bacteriology **OR 3 credits**
- PLPA 5300 Current Topics in Molecular Plant Pathology **2 credits**
Two Semesters Required
- PLPA 5301 Large Scale Omic Data in Plant Biology **3 credits**
- PLPA 8103 Molecular Plant-Microbe Interactions **3 credits**
- PLPA 8123 Research Ethics in Plant and Environmental Sciences **0.5 credit**
- PLPA 8200 Two semesters of Plant Pathology Seminar **2 credits**
(Total including any credits taken during the MS program at the University of Minnesota)
- GRAD 8101 Teaching in Higher Education* **3 credits**
- PLPA 8005 Supervised Teaching Experience **2 credits**
One semester in-classroom Teaching Experience (TE)

*For students based off the Twin Cities campus, an acceptable alternative to GRAD 8101 will be taking two specific GRAD 8200 online courses:

- GRAD 8200 Teaching for Learning: An Online Course
- GRAD 8200 Practicum for Future Faculty

Outside Coursework - Examples of suggested courses for the 12 supporting field/outside coursework credits:

- AGRO 8241 Chromosomal and Molecular Genetics of Plant Improvement **3 credits**
- AnSc 5200 Statistical Genetics and Genomics **4 credits**
- BioC 5361 Microbial Genomics and Bioinformatics **3 credits**
- Csci 5481 Computational Techniques for Genomics **3 credits**
- EEB 5221 Molecular Evolution **3 credits**
- GCD 5036 Molecular Cell Biology **3 credits**
- GCD 8131 Advanced Genetics and Genomics **3 credits**
- MICa 8002 Structure, Function, and Genetics of Bacteria and Viruses **4 credits**
- AGRO 5021 Plant Breeding Principles **3 credits**
- AGRO 5431 Applied Plant Genomics and Bioinformatics **3 credits**
- BBE 5302 Biodegradation of Bioproducts **3 credits**
- PMB 5412 Plant Physiology and Development **3 credits**
- CSCI 5461 Functional Genomics, Systems Biology and Bioinformatics **3 credits**

Thesis Credits - Complete 24 doctoral thesis credits
PLPA 8888 Doctoral Thesis Credits

Seminar Requirements – PhD students in Plant Pathology are required to enroll in two semesters of PLPA 8200 Plant Pathology Seminar for a total of two credits (one credit in each of two semesters). One credit earned in PLPA 8200 as part of an MS degree will be credited toward the doctoral degree; thus students entering a doctoral program who had previously earned an MS in Plant Pathology from the University of Minnesota are required to enroll in PLPA 8200 only one additional time.

As part of the planning process for doctoral thesis research, all PhD students must enroll in **PLPA 8200 at least once during their first year in residence** and must prepare and deliver a seminar **focused on planned thesis research**. This seminar will be developed in consultation with the graduate advisor(s) and the course instructor(s) according to the guidelines provided in the course syllabus. The requirement of a thesis research-based seminar provides an opportunity for the student to become familiar with literature and historical perspectives associated with their own research, as well as relevant contemporary research approaches, techniques, and analytical strategies. This seminar also provides a framework for setting and discussing thesis research goals and objectives.

In addition to the thesis research-based seminar, and during a different semester, doctoral students are required to prepare and deliver a **literature-based seminar on a topic unrelated to the student's thesis research**. The requirement of a literature-based seminar provides an opportunity to broaden perspectives in our field and explore topics of interest outside the student's research realm. Please note, PhD students who previously earned an MS in Plant Pathology or transitioned from the MS program, at the University of Minnesota, have met the literature-based seminar requirement.

In all cases, additional course requirements may apply at the discretion of the course instructor(s).

Required Teaching Experience: Doctoral students will register for PLPA 8005 and receive two credits for their full semester teaching experience. Students will be graded in PLPA 8005 on a Pass/Fail basis by the instructor of the course for which they complete their teaching experience.

Written Preliminary Exam – The written preliminary exam will be held once annually. The Director of Graduate Studies will meet in January of each year with that group of students planning to take the exam during that year. The dates for the exam will be selected in January or February by mutual agreement of the student(s) and the Director of Graduate Studies. The 3 days of the exam fall within a single week usually in June. If any student(s) chooses not to take the exam on the predetermined dates, they must wait to take the exam with the next year's group of students.

The structure of the exam will be as follows: the examination will consist of 3 half-day sessions during which students will be expected to answer a total of 9 questions, 3 per day. Questions test general knowledge of Plant Pathology such as would be covered in required courses. All faculty members are invited to submit questions.

Day 1: Cellular, Molecular, and Physiological Plant Pathology. On Day 1, there will be two categories of questions. Approximately one-half of the questions on the exam will address cellular, molecular, and physiological plant pathology; the other half of the questions will cover the broad range of general plant pathology. Students will be required to answer at least one question among those offered in the area of cellular, molecular, and physiological plant pathology. Students will answer two additional questions from either category.

Day 2: Whole Plant and Population-Based Plant Pathology. On Day 2, questions will be approximately equally divided between whole plant and population-based plant pathology, and general plant pathology. Students will be required to answer at least one question among those offered in the area of whole plant and population-based plant pathology. Students will answer two additional questions from either category.

Day 3: Individualized exam. The advisor will be responsible for providing the exam committee with questions to be answered by the student on the final day of the exam. Students will be required to answer three questions on the final day of the exam; the advisor will determine whether or not the student will have a choice of questions. The advisor may, at his or her discretion, choose to include questions from members of the student's Graduate Advisory Committee.



To successfully pass the written preliminary exam, students must achieve a score of 70% averaged over all 9 questions, i.e. it is permitted for students to receive scores on individual questions lower than 70% as long as the average is above 70%. Students pass or fail the entire exam; the possibility of passing or failing only a portion of the exam is not allowed.

Oral Preliminary Exam – Following successful completion of the written preliminary exam, students must pass an oral preliminary exam administered by members of the PhD examination committee.

Final Exam – The final examination is oral, centering on the defense of the doctoral thesis.

Minor Requirements for Students Majoring in Other Fields - A minimum of 12 credits are required for a doctoral minor. The department offering the minor should be consulted for exact requirements. Students must submit a minor GPAS to the minor department for approval.

Program-Wide Requirements, Policies, and Opportunities

Graduate Student Advisory Committee and Submission of Preliminary Thesis Proposal Policy

To facilitate the progress of students through their graduate programs and to ensure early involvement of students' Graduate Advisory Committee, the following steps are required of all students:

Graduate Advisory Committee Requirement: All graduate students in Plant Pathology are assigned an advisor at the beginning of their graduate program and are required to select a Graduate Advisory Committee and convene a meeting of this committee **by the end of the first year** in residence. It is suggested that each student's Graduate Advisory Committee meet at least annually after the initial meeting to review the student's progress and to provide constructive advice on the planning, methods, analysis, and write-up of thesis research.

MS Graduate Advisory Committee: A MS student's Graduate Advisory Committee must consist of at least three members, including the advisor/s. At least two members (including the advisor) must be from the student's major field, and one member must represent a field outside the major. While strongly encouraged, membership of a student's Graduate Advisory Committee is not required to be identical to their Examining Committee (final oral examination).

PhD Graduate Advisory Committee: A PhD student's Graduate Advisory Committee must consist of at least four members, including the advisor/s. At least three members (including the advisor) must be from the student's major field, and one member must represent a field outside the major. While strongly encouraged, membership of a student's Graduate Advisory Committee is not required to be identical to their Examining Committee (final oral examination).

Preliminary Thesis Proposal Requirement: The proposal will include a literature review, research objectives, and the proposed research approach and methods. The proposal should be considered as a working document that may be modified at a later time as deemed appropriate.

Academic Standing: cumulative GPA of 2.8 is required to graduate from the Master's Degree program, and a cumulative GPA of 3.0 is required to graduate from the Doctoral Degree program.

Academic Probation Status occurs if a Master's student with a cumulative GPA below 2.80, and Doctoral students with a cumulative GPA below 3.0, for two semesters will be placed on probation. If no improvement occurs in an additional semester, their graduate study will be terminated.

Graduate Student Annual Progress Review: All graduate students will be reviewed annually by their advisor, co-advisor, and the DGS. The review will serve to evaluate progress and identify potential problems with the academic progress of each student. Students are required to document their progress annually on the appropriate Graduate Student Progress Evaluation and Tracking Form that will be sent out annually, during the spring semester, by the Graduate Program Coordinator.

Graduate Student Seminar Attendance Policy

The Plant Pathology Seminar is an important part of student learning and professional development, providing exposure to areas of plant pathology that might not be presented in PLPA courses. While enrollment in the Plant Pathology Seminar (PLPA 8200) is only required of students in the semester(s) in which they present a seminar, all graduate students in the Plant Pathology Graduate Program are required to attend Plant Pathology seminars throughout the duration of their enrollment in the program. In the event that a course conflict or research obligation prevents a student from attending three or more seminars in a given semester, a student may request to have this requirement waived by submitting a request to the DGS in writing. Any such request should be made prior to missing a third seminar in any given semester. See Appendix D, Plant Pathology Seminar Policy.

Graduate Student Internships

Internship opportunities can provide students with unique exposure to research in other environments, including private industries, federal agencies, other countries, or other universities. Because of their value to the graduate student experience, the Department of Plant Pathology will offer credit (PLPA 8090) for internships of 3-12 weeks duration. In addition, the Department has developed a small pool of funds that will be awarded competitively to provide travel funds and short-term research assistantship support for students over the course of the internship. Students interested in pursuing an internship are encouraged to contact individuals with whom they may wish to work, or to work with their advisor and Graduate Advisory Committee in exploring potential options.



Students are urged to plan ahead. Students desiring an internship will be required to prepare a 4-6 page proposal for the internship, including a summary of internship goals, description of specific activities, location for the internship, justification for the location, and explanation of how the internship will enhance their graduate program. The internship proposal must include letters of support from both the proposed host and the graduate advisor. Internship proposals must also include a request for and justification of PLPA 8090 credits to be assigned to the internship experience. We expect internship experiences are likely to be assigned from 2-8 credits (S/N)--depending upon their length and the activities involved. Finally, if departmental funding is requested, the internship proposal must include a detailed budget on travel, lodging, per diem, and miscellaneous expenditures.

Internship proposals will be reviewed by the DGS and Education Committee in consultation with the Department Head. Proposals are accepted anytime during the year but should be submitted well in advance of the planned internship. The DGS and Education Committee will approve or recommend revisions to internship proposals, and recommend funding accordingly. Because funds are limited and may sometimes be tied to specific internship experiences (e.g. international experiences), full funding of all internship proposals is not guaranteed.

Within 30 days of the conclusion of the internship, students will be required to submit to the DGS, Education Committee, and Graduate Program Coordinator, a brief written report summarizing their internship experience, including specific accomplishments, contributions to the student's program, effects on future research and career plans, and any plans for continuing collaborative interactions with the host. In addition, students are required to present an informal seminar on their internship experience and develop a brief presentation on their experience for posting on the department's website.

For more examples of past internship experiences visit our [professional development web page](#).

Policies for Completing a Teaching Experience

All MS and PhD students who were admitted into the PLPA Graduate Program are required to complete a full semester Teaching Experience (2.0 credits) as part of the degree program.

Master's Program Required Teaching Experience:

- Complete Teaching Experience for one semester in a Plant Pathology (PLPA designator) course or other course approved after agreement among the student, the student's advisor, and the Teaching Experience coordinator.
- Register for PLPA 8005, Supervised Teaching Experience (2 credits). Course will appear on the student's transcript. Contact GPC for permission number to complete registration.
- Teaching experiences will be graded in PLPA 8005 on a Pass/Fail basis by the instructor of the course for which they TA.
- MS students are required to enroll in a workshop on teaching methods, or as an option to enroll in teaching enrichment courses. Workshops on teaching are also offered in the Preparing Future Faculty program through the Center for Educational Innovation (CEI). Each fall semester, CEI sponsors a "New TA Orientation", and can be used to fulfill the workshop requirement.
 - Please note: CEI workshops are generally offered in the weeks preceding the start of the fall and spring semesters. Information on the current offerings that meet this requirement are available on the [CEI's Workshop & Events page](#).
- The TE coordinator will be required to approve course selection to fulfill the MS TE requirement.

Doctoral Program Required Teaching Experience:

- Complete Teaching Experience for one semester in a Plant Pathology (PLPA designator) course or other course approved after agreement among the student, the student's advisor, and the Teaching Experience coordinator.
- Register for PLPA 8005, Supervised Teaching Experience, 2 credits. Course will appear on the student's transcript. Teaching experiences will be graded in PLPA 8005 on a Pass/Fail basis by the instructor of the course for which they TA.
- Complete [GRAD 8101 Teaching in Higher Education](#) (3 credits)* Teaching experience can be done concurrently with GRAD 8101, or during a subsequent semester. Students for whom teaching is a career goal are encouraged to participate in Preparing Future Faculty workshops/certificates offered through the Center for Educational Innovation (CEI). Information on current offerings are available at CEI Preparing Future Faculty Program.

*For students based off the Twin Cities campus, an acceptable alternative to GRAD 8101 will be taking two specific GRAD 8200 online courses:

- [GRAD 8200 Teaching for Learning: An Online Course](#)
- [GRAD 8200 Multicultural Inclusive Learning and Teaching \(MILT\)](#)
- The TE coordinator is required to approve the course selection to fulfill the PhD Teaching Experience requirement.

International students are encouraged to access the diverse on-campus opportunities for enhancing their English language skills prior to completing the Teaching Experience. Comprehensive activities are offered through the [University of Minnesota's Center for Educational Innovation International Teaching Assistance Program](#) (including for-credit courses, individual consultations, training, workshops, and online resources). International students with noted English Language Proficiency (ELP) deficiencies, low TOEFL or ELP rating of rating greater than ELP 1, should plan on taking or retaking the SETTA (Spoken English Test for Teaching Assistants). To learn more about the SETTA and how to schedule please visit Spoken English Test for Teaching Assistants.

Teaching Experience Expectations: The workload will depend on the course and the instructor. Generally, you will be expected to teach a lab section and assist with grading or other similar course responsibilities for the semester. Please be aware that there will not be compensation for the TA position. Teaching experiences will generally take place in the following courses:

Fall Semester

PLPA 1005 Plants Get Sick Too	Instructor: Kurle	2-3 TE's Needed
PLPA 5480 Principles of Plant Pathology	Instructor: Arenz	

Spring Semester

PLPA 2001 Intro Plant Pathology	Instructor: Dill-Macky	2 TE's needed
PLPA 3003 Diseases of Forest & Shade Trees	Instructor: Blanchette	

Financial Support for Plant Pathology Grad Students: Research Assistantships

Research Assistantships Policy - The length of time for Research Assistantship (RA) financial support for an MS degree is 2.5 years from the time of admission and 3.5 years for a PhD degree for those students already possessing an MS degree. If for some reason it appears that a student will require additional time beyond the stated periods, a petition may be filed to the Education Committee (see the section on Graduate Student Progress Evaluation Report) for an extension of financial support if the student and his or her advisor believe there are special circumstances beyond the student's control that have prevented the student from finishing within the allotted time period. Extensions of financial support for research assistantships will be for periods of no longer than six months in duration.

It is intended that all students on RA's will be subject to the constraints regarding time limits as described above, regardless of the source of financial support. However, in the case of RA's that are supported through extramural funds, exceptions may be made where unusual circumstances exist that would necessitate extending the time limit for support beyond those stated above. In these instances, the project leader should discuss these circumstances and come to an agreement with the Director of Graduate Studies and the Department Head before an extension is granted.

Tuition Remission for Graduate Research Assistants - Tuition reimbursement will be limited to tuition costs for a maximum of 14 credits per semester (fall and spring). Though you may be offered a summer RA appointment, summer tuition is not included in this offer. Costs for any additional credits taken in a given semester will not be reimbursed. Note: A manual adjustment will be made by the Graduate Assistants Office for professional degree programs that set their own tuition schedule. The cap for these programs will be at the top of their full-time tuition band.



Change of Status: Policy to Proceed Directly to the Doctoral degree from the Bachelor of Science (BS) Degree

All students accepted into the department with a BS degree are admitted initially into the Master's Degree Program. After a minimum of two semesters, exceptionally well qualified individuals may elect to change their degree status to a PhD program. Documentation (including evidence of competent writing skills, e.g., publications, preliminary thesis proposal for PhD research program) for the change in degree status will be submitted to and evaluated by the student's Advisor(s), Graduate Advisory Committee, the Admissions Review Committee, and the Director of Graduate Studies. The decision by the two committees must be unanimous. Criteria for the change include scholastic standing, potential for success in completing a PhD and writing competency. Once approved at the program level, the change in status must also be approved by the Graduate School (GSSP Office).

Note: Current Plant Pathology MS Students changing to a PhD program must complete a new [Online Application](#) and pay the application fee through [The Graduate School Admissions Office](#).

After a change of status has been made, a student may elect to return to an MS program. However, this must be done prior to the time of the PhD preliminary written exam. After this time, failure of the written exam, failure of the oral exam, failure in research, etc. will not constitute an automatic return to MS status.

For more information on change of status and for the required forms, see [Change or Add a Degree Objective](#) through the Graduate School. Complete the [Change of Status](#) form if you want to change status from a PhD to a Master's in the same program, or add, remove, or change a track in your current major.

Plant Pathology Change of Advisor Policy

The advisor/student relationship is one of mutual agreement, which may be terminated by either party. In most cases, students stay with a single major professor during their entire degree program. However, on rare occasions, a student may decide to terminate the advisor/student relationship because it is not working well or for other unforeseen circumstances.

A student has the right to request a change of faculty advisors for any reason, and the Director of Graduate Studies (DGS) must approve the change. If you are considering changing advisors, please contact the DGS or Graduate Program Coordinator (GPC) to discuss steps to reconcile differences or conflict, consider how and when to inform the current advisor of your plan to change advisors, and identify other faculty members who could serve as your advisor. Additionally, students are encouraged to speak with committee members for additional guidance on this matter. Please visit the [Student Conflict Resolution Center](#) for additional resources and assistance.

Research Assistantships are frequently associated with specific grant and/or faculty funds, and this means that they may not be transferable from one faculty member to another. A change in advisor may result in a loss of student funding unless the student or new advisor identifies an alternate source of funding.

Procedure to change advisors:

1. Student to discuss the change with DGS or GPC
2. Student to discuss the change with the proposed new advisor
3. Student to discuss the change with current advisor
4. If both advisors agree to the change, the student's request to change must be presented to DGS in writing (email).
5. Once the request has been approved by the DGS, the student will receive email notification of the approval.

Example of Request to Change:

Cc: current advisor, new advisor, GPC, Administrative Director

Dear Director of Graduate Studies,

I am requesting approval to change from my current advisor (current advisor name) to (new advisor) on (include date change will occur). I have discussed this with both professors and they have agreed to this change.

Thank you.

(insert your name), (student ID)

List of University Resources for Students and Faculty Advisors:

Student Conflict Resolution Center's Dignity Project

[Improving Advising of Graduate & Professional Students Resources](#)

[Tips for TA's, RA's, and Supervising Instructors](#)

[Preparing for a Difficult Conversation](#)

[Difficult Conversations: A Coaching Guide](#)

Graduate School Faculty & Staff Toolkit

[Faculty Advising Resources](#)

University Policy

[Mutual Roles and Responsibilities for Faculty and Graduate Students: Guidelines](#)

CFANS:

[Intranet Resources for CFANS Graduate Programs](#)



Appendices

Appendix A: By-Laws of the Graduate Student Assembly in Plant Pathology

ARTICLE I - GENERAL

Section 1: The official name of this organization shall be the Students in Plant Pathology Assembly.

Section 2: The Students in Plant Pathology Assembly shall operate as a non-profit organization.

Section 3: The Students in Plant Pathology Assembly shall abide by the applicable rules and policies of the University of Minnesota pertaining to student organizations.

Section 4: This Assembly shall exist for the following purposes: a. To provide academic activities of timely interest to members on contemporary aspects of plant pathology and related sciences. b. To provide social activities and events for the membership. c. To participate in formulating and implementing policy of the Department of Plant Pathology according to the department's Constitution and By-Laws.

ARTICLE II - MEMBERSHIP

Section 1: Voting membership is open to all Plant Pathology students at the University of Minnesota.

Section 2: Membership is open to all students without regard to race, creed, color, sex, national origin, or handicap.

Section 3: Graduate and undergraduate students in Plant Pathology, or students of faculty who are members of the Department of Plant Pathology, shall become active members by attending any regular meeting of the organization. An Assembly member shall be considered inactive when they are not present at two consecutive meetings.

Section 4: Any member may be impeached for misconduct. (For example - failure to perform duties, attendance, misuse of funds, etc.) The member/ officer shall be given a seven (7) day notice and an opportunity to defend him/herself. This impeachment vote shall require a 2/3 majority vote.

ARTICLE III - OFFICERS

Section 1: The officers of this organization shall consist of Chairperson, Vice-chairperson, and Secretary/treasurer.

Section 2: All officers must be currently enrolled students at the University of Minnesota. Exceptions to the requirement are permitted for graduate students upon receipt of a letter from the Director of Graduate Studies of the student's department certifying that the student is actively pursuing a degree.

Section 3: Officers shall be elected before the end of spring, assume responsibilities on the first day of summer quarter, and serve for a period of one year. Nominations for officers shall be made and seconded at a regularly scheduled meeting. The Secretary/treasurer shall distribute a secret ballot to all members, and officers shall be elected by plurality of the votes returned to the Secretary/treasurer.

Section 4: The duties of the officers are as follows:

- a) **Chairperson** - Call and preside over all regular meetings of the organization and serve as Chairperson of the Executive Committee. Act as official representative of the club at other meetings and events.
- b) **Vice-chairperson** - Assist the chairperson and assume their responsibilities when the chair is absent. The person shall serve as the graduate student representative on the Council of Graduate Students, or the person shall find another graduate student to serve as COGS representative.
- c) **Secretary/treasurer** - Record and produce minutes of and attendance at all meetings. Handle the organization's correspondence. Handle all financial transactions of the organization. Maintain thorough and accurate records of all transactions. Produce financial reports during the first week of each academic quarter. Administer election of officers as described in Section 3.

ARTICLE IV - COMMITTEES

Section 1: Executive Committee - Consists of the elected officers and all committee officers. Sets meeting dates for the organization. Sets membership dues with approval of the membership. Determines committee assignments. Acts on behalf of the organization during the summer.

Section 2: Special committees may be established to carry out special assignments as mentioned in the organization's by-laws or as approved by the membership at a regular meeting.

ARTICLE V - MEETINGS

Section 1: A regular meeting shall be held once each month during the academic year. A special meeting may be called and convened by the Executive Committee or by a petition of ten percent of the active membership.

Section 2: A quorum shall be present in order to conduct official business of the organization. A quorum shall consist of 50 percent of the active membership plus one.

Section 3: Decisions of the organization shall be enacted by a majority vote of the active membership present.

Section 4: Members shall receive a written notice one week in advance of all meetings.

Section 5: Members may submit signed absentee votes to the Secretary/Treasurer for any issue listed on the agenda. This action shall maintain active status for an individual.

ARTICLE VI - FINANCIAL MATTERS

Section 1: The organization shall not provide monetary gain, incidentally or otherwise to its directors or membership.

Section 2: Unless otherwise specified by the membership at the time of dissolution of the organization, residual assets shall be distributed to the following not-for-profit organizations according to the proportions listed here: Department of Plant Pathology (University of Minnesota) 100%.

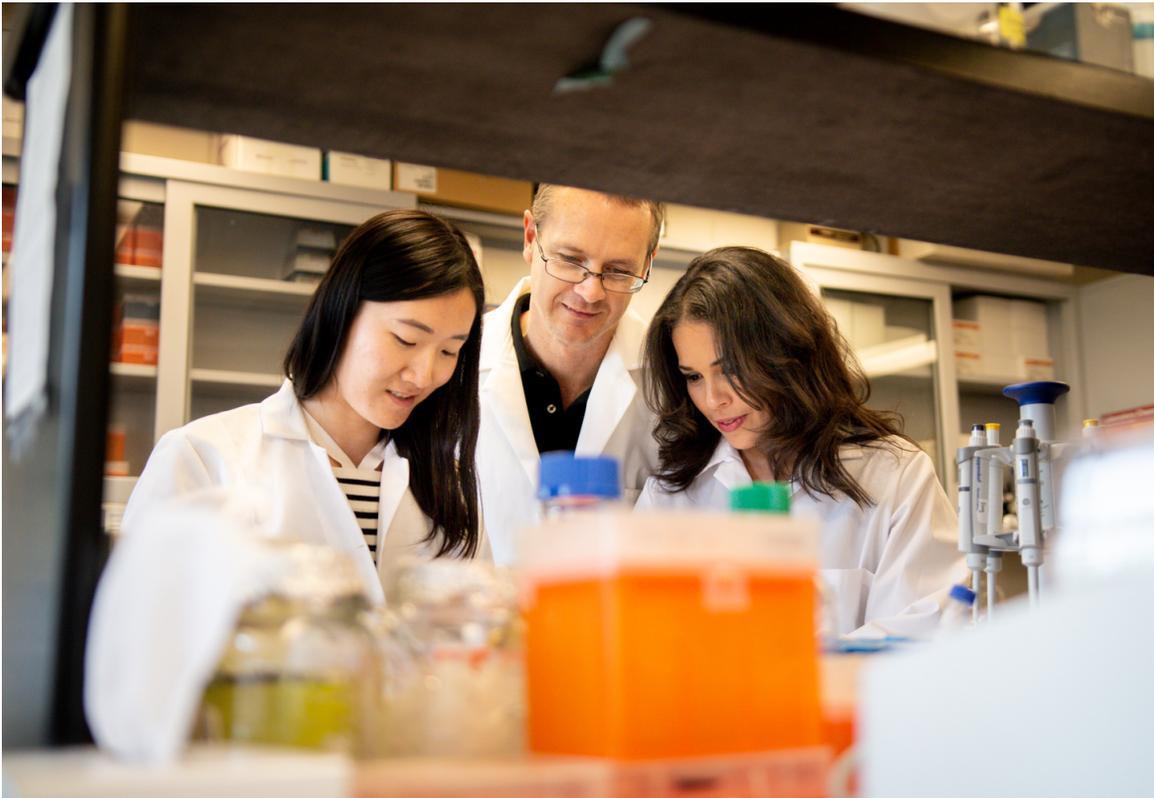
ARTICLE VII - BY-LAWS

Section 1: By-laws may be proposed by the membership and may be adopted or amended by a majority vote of those present at a meeting when a quorum is present.

ARTICLE VIII - AMENDMENTS

Section 1: Amendments to the constitution may be proposed by any member of the organization. Such proposals shall be submitted in writing to the Executive Committee for a first reading to the membership at the regular meeting prior to the meeting at which the proposed amendment is to be voted on.

Section 2: Duly proposed amendments shall be submitted to a vote of the active members providing a quorum is present. A two-thirds majority vote in favor shall be required for adoption of such amendment.



Appendix B: [Mutual Roles and Responsibilities for Faculty and Graduate Students](#)

Introduction

A major purpose of graduate education at the University of Minnesota is to instill in each student an understanding of and capacity for scholarship, independent judgment, academic rigor, and intellectual honesty. Graduate education is an opportunity for the student to develop into a professional scholar. Graduate research and teaching assistantships offer an “apprenticeship” experience in the academic profession as well as financial support. It is the joint responsibility of faculty and graduate students to work together to foster these ends through relationships that encourage freedom of inquiry, demonstrate personal and professional integrity, and foster mutual respect. This shared responsibility with faculty extends to all of the endeavors of graduate students, as students, employees, and members of the larger academic community.

High quality graduate education depends on the professional and ethical conduct of the participants. Faculty and graduate students have complementary responsibilities in the maintenance of academic standards and the creation of high quality graduate programs. Excellence in graduate education is achieved when both faculty and students are highly motivated, possess the academic and professional backgrounds necessary to perform at the highest level, and are sincere in their desire to see each other succeed.

The following principles illustrate what students should expect from their programs and what programs should expect from their students, to help achieve this excellence.

Principle 1: Information About Policies and Procedures

The University, collegiate units and graduate programs are responsible for providing students and prospective students with access to information about their graduate program, areas of specialization, degree requirements, and average time to completion of degrees. Graduate programs are responsible for providing access to information about graduate student financial support in the program, such as the prospects for fellowships, assistantships or other financial support and the proportion of students receiving financial support. In addition, graduate programs should provide students and applicants with information about career experiences of graduates of the program. All such information should be presented in a format that does not violate the privacy of individual students. Programs are encouraged to provide relevant information in their handbooks, websites or other readily accessible formats.

Students are responsible for keeping themselves informed about current policies of their program, their collegiate unit, and the University that affect graduate students. Students and alumni also have a responsibility to respond to program inquiries about their career development.

Principle 2: Communication About Academic Status

The collegiate unit and graduate programs are responsible for providing students with information about their individual academic status: who in the collegiate unit and in their graduate program is responsible for communicating to them about admission issues and progress through the degree program, how the communication will take place, and the possibility for appeal to a third party for assistance in resolving disputed issues.

Students are responsible for communicating with the collegiate unit and their graduate program about changes in their circumstances that affect their status and progress toward the degree.

Principle 3: Research Contributions

Individual faculty as research directors are responsible for providing students with appropriate recognition for their contributions at conferences, in professional publications, or in applications for patents. It is the faculty member's responsibility to clarify the principles for determining authorship and recognition at the beginning of any project.

Students are responsible for discussing their expectations regarding acknowledgment of research contributions or intellectual property rights with the appropriate person(s) in the research team, preferably early in the project.

Principle 4: University Governance

Departments and graduate programs are responsible for defining specific opportunities for student participation on committees as they deem appropriate. The University recognizes that graduate students make important contributions to governance and decision making at the program, department, college, Graduate School and University level; specific roles for participation are defined at each level by the relevant governing bodies.

Students are responsible for participating in University governance and decision making that enrich the campus community.

Principle 5: Respectful Employment Conditions

University faculty and staff are responsible for ensuring that graduate students are able to conduct their work, as students or students/employees, in a manner consistent with professional conduct and integrity, free of intimidation or coercion. Students who are employees also have the protection of all University employment policies and laws. Graduate programs are responsible for providing clear communication to students about the possibility for appeal to a third party for assistance in resolving disputed issues.

Students are responsible for reporting unprofessional conduct to the appropriate body or person, as defined in the academic or employment grievance policy; they should be able to do so without fear of reprisal. Students are responsible for acting in a respectful and fair manner toward other students, faculty, or staff in the conduct of their academic work or work they may do in connection with an assistantship.

Principle 6: Conditions of Employment

The University (through its departments, research projects or other employing units) is responsible for providing prospective graduate assistants a written offer of financial support before a response to the offer is required. Such communication must indicate their salary and the terms and conditions of their appointment, including the general nature of the work they will be performing, duration of employment, and whether and how this employment is tied to their academic progress. The details of specific teaching or research assignments may need to await later written clarification.

Students are responsible for accepting the conditions of employment only if they believe they are qualified and able to complete the tasks assigned. Students have a responsibility for communicating in writing any changes in their circumstances that affect their ability to fulfill the terms and conditions of their employment.

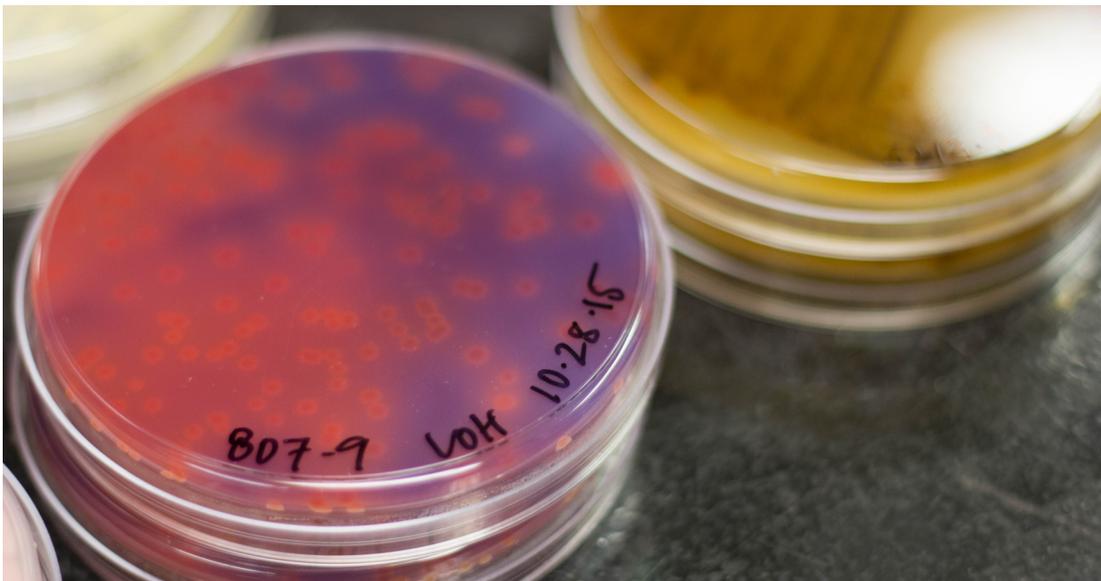
Principle 7: Safe Work Environment

Supervisors are responsible for providing a safe working environment for graduate students, and for developing and publicizing safety policies and training programs to achieve that goal.

Graduate students are responsible for helping to maintain a safe working environment, for adhering to safety policies, for participating in training programs and for reporting safety violations to the proper authority.

Principle 8: Responsible Conduct of Research

Students are responsible for carrying out their research in a responsible manner. The faculty and the Director of Graduate Studies (DGS) of the graduate program are responsible for ensuring that students receive training and guidance in the responsible conduct of research as appropriate for each field.



Appendix C: Plant Pathology Graduate Student Seminar Policy

Graduate Student Seminar PLPA 8200 - The graduate student seminar is a class in which students will have the opportunity to practice and develop good scientific communication skills. Students will summarize current literature and critically examine the research topic. The seminar should provide each student with an opportunity to explore an area of plant pathology that they may not otherwise investigate. The presentation should be an in depth analysis that evaluates the strengths and weaknesses of the reviewed research. Students should also present what they believe are the next logical steps in advancing this area of research.

The Graduate Student Seminar is like any other formal graduate course taken for credit. The seminar must be evaluated using the Uniform Grading Policy of the University of Minnesota. Grading for the seminar is A – F scale. Students are expected to achieve a grade of B or better for the course. Only the Seminar Instructor(s) or designated stand-ins can assign a letter grade for the student seminar. That does not however preclude others in the audience (other faculty members, P&A personnel, staff and students) from providing qualitative, constructive comments that can only assist the speaker in improving their future presentations. We strongly encourage that practice and appreciate any input. Students registered for the class are required to provide peer evaluations for fellow students. The Seminar Instructor(s) and the Seminar Advisor for the student have the responsibility to provide assistance, direction and guidance to the student in preparing and practicing for the presentation.

The Seminar Instructor(s) must approve the seminar topic and the choice of the Seminar Advisor for each student in advance. MS students are required to prepare and deliver a literature-based seminar on a topic unrelated to the student's thesis research. PhD students must enroll in PLPA 8200 in two separate semesters. During their first year in residence PhD students must prepare and deliver a seminar focused on planned thesis research. Additionally, during a different semester, PhD students are required to prepare and deliver a literature-based seminar on a topic unrelated to the student's thesis research. The Seminar Advisor cannot be the student's graduate or thesis advisor or a current seminar instructor. The Seminar Instructor(s) have sole authority to determine the appropriateness of any proposed seminar topic.

The faculty Seminar Advisor has all the same responsibilities as an Instructor, working closely with the student advisee and providing all the needed direction and guidance to assist the student in presenting a successful seminar. The seminar consists of a 50-minute class period. Each student seminar must adhere to a time frame determined by the seminar instructors and must allow time for follow up questions and discussion. The subject of presentation must be immediately relevant to the science of plant pathology.

Seminar Requirements:

1. A seminar presentation will concentrate on a critical review or evaluation of a few key papers in the area of coverage.
2. A PowerPoint (or similar) presentation is required. The department will reimburse any cost incurred in preparing the illustrations.
3. Every student giving a seminar shall rehearse the seminar well in advance with the Seminar Advisor, according to the course guidelines.
4. The abstract must clearly reflect the contents of the seminar presentation and must be immediately relevant to the selected seminar topic. Abstracts will strictly follow the guidelines of the American Phytopathological Society Annual Meetings with the addition of a list of key references in journal format.
5. A seminar abstract is due to the Seminar Advisor 7 working days in advance of the seminar. The Seminar Advisor is expected to provide input and to approve the final version of the abstract.
6. The approved abstract must be distributed electronically to all members of the department at least 2 days prior to the scheduled seminar.
7. The Seminar Instructors and/or the Seminar Advisor will meet with the student speaker soon after the seminar to review the evaluations and communicate the final letter grade.

Doctoral Student Seminar Requirements

PhD students in Plant Pathology are required to enroll in two semesters of PLPA 8200 Plant Pathology Seminar for a total of two credits (one credit in each of two semesters).

As part of the planning process for doctoral thesis research, all PhD students must enroll in PLPA 8200 at least once during their first year in residence and must prepare and deliver a seminar **focused on planned thesis research.**

In addition, during a different semester, doctoral students are required to prepare and deliver a literature-based seminar on a topic **unrelated to the student's thesis research.** The requirement of a literature-based seminar provides an opportunity to broaden perspectives in our field and explore topics of interest outside the student's research realm. Please note, PhD students who previously earned an MS in Plant Pathology or transitioned from the MS program, at the University of Minnesota, have met the literature-based seminar requirement.

Master's Student Seminar Requirement

MS students in Plant Pathology are required to enroll in one semester of PLPA 8200 Plant Pathology seminar for one credit.

MS students will prepare and deliver a literature-based seminar on a topic **unrelated to the student's thesis research.** The requirement of a literature-based seminar provides an opportunity to broaden perspectives in our field and explore topics of interest outside the student's research realm.

Appendix D: Data Management Policies

Graduate students in Plant Pathology are expected to organize, annotate, store, and provide ready access to data included in dissertations, theses and peer-reviewed publications. Making research data available to the broader community is a valuable skill that all students should learn and something that is typically required by journals and funding agencies. To be broadly and easily accessible, data generated by or for student research should receive a Digital Object Identifier (DOI) or similar persistent identifier. Different research projects will generate different types of data, which may include student-authored scripts and software, and some datasets may require very large storage requirements. In each case, students should provide adequate documentation about their data with guidance from their advisor, director of graduate studies and thesis committee members.

Often, data documentation can be as simple as a table or appendix in a student's thesis or dissertation. Documentation should include the filename, data type, location, brief description, timestamp(s), and doi (or similar identifier) for each major dataset. Relevant metadata should be associated with underlying datasets, which students may decide to include within their thesis or dissertation.

In nearly every case, an important outcome for data generated by graduate students during their degree program is that the data be freely available as soon as possible. However, there may be situations where data need to be embargoed, affected by intellectual property considerations, or withheld from being made public for other reasons. If so, the metadata should still be reported to highlight the types of data in the project and the contingencies and date(s) when withheld data are likely to become publicly available. Ultimately, ownership of data is governed by the University of Minnesota Regents Policy (<https://policy.umn.edu/research/researchdata>).

Students and advisors should choose data repository(ies) most appropriate for their data types and research specialty. In the process, students should obtain an Open Researcher and Contributor ID (ORCID) to tag their work for long term preservation and accessibility. Most important in the choice of data repositories will be the organization, size limitations, community acceptance, sharing capabilities, and longevity of the repository. Examples of data repositories that may be considered include, but are not limited to: Genbank, CyVerse, GitHub, Dryad, and Ag Data Commons. Depending upon the size and intended use, student data may also be appropriate for the [Data Repository for the University of Minnesota \(DRUM\)](#).

Appendix E: Membership in Professional Societies

Opportunities exist for students to become members of professional societies. The advantages of this association are many. Once a graduate student accepts a research assistantship, that person is, in fact, a professional scientist because an assistantship is not a scholarship--one is paid for the performance of an investigation. As a benefit of membership, each organization provides one or more journals and has a placement service for help in employment upon graduation.

During one's graduate career, a student is encouraged to present a paper or poster at the annual meetings and usually only members are accorded this privilege. Similarly one must be a member to publish in the society journal, although only one of the authors on the paper needs to be a member. This policy varies with the society. Usually these are written using the format of a given professional journal in which the student is most likely to publish their results.

Please see Administrative Director [Kristen Opitz](#) or Graduate Program Coordinator [Diane Hennan](#) about Department-paid annual memberships to one professional membership per Graduate Student.

Several societies are appropriate societies to join. A few are listed below:

American Phytopathological Society - <http://www.apsnet.org>
International Society for Plant Pathology - <https://www.isppweb.org>
Mycological Society of America - <https://msafungi.org/>

Other examples of societies you may be interested in include:

[American Association for the Advancement of Science](#)
[American Institute of Biological Sciences](#)
[Botanical Society of America](#)
[Canadian Phytopathological Society](#)
[Society of Nematologists](#)



Appendix F: Department of Plant Pathology Contact Information

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