

Botany and Plant Pathology

Graduate Manual

2018



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Graduate Student Responsibilities

Success in graduate school requires that you take ownership for your own learning and professional development. It is important to be aware of the fact that being a graduate student involves more than completing coursework. Graduate school is quite different from undergraduate programs. Generally speaking, there is less structure in a graduate program. This means that you will have to take accountability for keeping your research focused and on track. As such, you will be responsible for the following:

Understanding your degree requirements – It is your responsibility to read and understand this Department Graduate Manual. If you have questions about the material, please ask Lisa Gross. This manual is also available online.

Defining expectations – Since different people have different approaches to communication and time management, it is important for you and your major professor to define what is expected of you. Does your professor prefer daily check-ins, weekly or monthly meetings, or meeting on an “as needed” basis? Are you expected to work in the lab from 8am to 5pm or can you make your own schedule? Sit down with your major professor during your first few weeks at Purdue to clearly define these expectations. Knowing what is expected of you can help you to meet and exceed those expectations and help you achieve your degree on time.

Checking your *purdue.edu* email and your Botany mailbox – Your *purdue.edu* email and your Botany mailbox are the official methods of communication used by the University, the department, and your committee. You are responsible for the materials and information sent to these locations.

Taking action – You are required to follow up on any academic or financial actions that have been requested. Failure to do so can result in termination of your registration, pay, graduate standing, or even your visa. It is always easier to remain in good standing than trying to correct oversights for the simple reason that some may not be correctable.

Graduate Student Progress Checklist

Use this checklist to keep track of your progress and to monitor upcoming deadlines. Each semester you register for classes and/or research counts towards these deadlines, including the summer semester.

All Students:

- Take BTNY 590 your first Fall semester at Purdue
- Take GRAD 612 within first year at Purdue
- Form Advisory Committee during first semester
- During your final year, present your exit seminar
- Hold first committee meeting in 2nd semester
- Submit research proposal in 2nd semester
- Submit your Plan of Study in 2nd semester
- Complete your Final Exam and submit your thesis
- Complete Exit Seminar

Ph.D. Students:

- If international student, take OEPT to qualify to TA
- Complete the Prelim Exam by your 7th semester
- Complete at least one semester as a Teaching Assistant (TA)

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Policies and Procedures

Introduction

The purpose of this section of the manual is to acquaint the student with the policies and procedures that govern the Graduate Program in Department of Botany and Plant Pathology at Purdue University. The department reserves the right to change these policies and procedures at any time.

The Graduate School regulates all graduate programs at Purdue University. In this way, standards are maintained across the University. These standards include admissions, advisory committee structure, course credit, plan of study format, and registration requirements. Our departmental Graduate Committee uses these general guidelines when reviewing programs and establishing departmental procedures and guidelines.

Graduate Program Options

The department offers M.S. and Ph.D. degrees in three graduate programs: Plant Biology, Plant Pathology, and Weed Science.

Non-Thesis M.S. Program

A non-thesis M.S. degree is designed for those students who do not plan to pursue a career in research. A student who selects a non-thesis Master's option should satisfactorily complete a minimum of 32 hours of coursework. In addition, the student will be required to pass a final examination over the coursework.

Thesis M.S. Program

The M.S. Program requires the student to complete coursework listed on the plan of study, execute research that culminates in a thesis, and pass an examination over coursework and thesis research. Master's plans of study require 30 hours of combined course and research credits.

Doctor of Philosophy Program

The Ph.D. Program requires that the student complete coursework listed on the plan of study, execute research that culminates in a dissertation, and pass the required preliminary and final examinations. Ph.D. plans of study require 90 hours of combined course and research credits. Up to 30 credit hours of courses taken during a Master's program may apply toward a Ph.D. program.

Grades and Index Requirements

A graduate student is expected by both the department and the Graduate School to maintain a cumulative and semester GPA of 3.0. If a student's cumulative or semester GPA falls below 3.0, the student will be placed on departmental probation. If a student earns a GPA less than 3.0 in any two successive semesters or the cumulative GPA stays below 3.0 for two successive semesters, he or she may be asked to discontinue graduate study at Purdue University.

Graduate students are expected to earn S grades for research credits. If a student earns a U grade in two successive semesters the department is required to take formal action with regard to discontinuation or conditions for continuation of the student's graduate study.

Major Professor

The major professor is a key individual in the development of an individual graduate student's program. The major professor helps the student plan a program of study that will best prepare the student to reach his or her career goals. It is the responsibility of the student to achieve the prescribed level of excellence, with the major professor directing the way. Typically, the major professor is the principal investigator on a grant or project on which the student will be conducting his or her research. During the application phase, the major professor and student may have corresponded or met during a recruiting visit, and have agreed to conduct a research project together.

Advisory Committee

An advisory committee will be formed during the first semester of the student's enrollment. For those students doing a rotation during their first semester, an advisory committee will be formed once a major professor has been chosen. The student, in consultation with the major professor, will determine the composition of this committee. The committee consists of at least three faculty members for the M.S. and four for the Ph.D. These numbers are including the major professor. All members of the M.S. advisory committee may be from the Department of Botany and Plant Pathology. Three members of the Ph.D. committee may be from the Department of Botany and Plant Pathology, but the fourth member must be from another department. At least half of the members of the Advisory Committee must be from Purdue's West Lafayette campus.

It is the function of the advisory committee to assist the student in developing an appropriate plan of study and to review the detailed research proposal once the preliminary program has been outlined by the major professor and student. The role of the committee members is to offer helpful suggestions toward the most effective execution of the research effort. Students are required to have their first committee meeting by the end of their second semester of study. If this deadline is not met, the student will not be allowed to register for the next semester of courses.

The student is required to meet with their advisory committee at least once annually thereafter so that progress can be evaluated. The student's progress is recorded on a report sheet by the committee and then returned to Lisa Gross to be maintained in the student's departmental file.

Research Proposal

Prior to submitting the plan of study, students will prepare a brief proposal of their research. It is recommended that the student, in consultation with the major professor, outline the research proposal for the graduate research shortly after the student has selected a topic. Prepare the proposal according to the following format:

1. **Introduction:** A clear statement as to why the project is important and necessary. This statement need not be more than one double-spaced typewritten page.
2. **Objectives:** A short, clear statement of the principal objectives of the study.
3. **Procedures:** A detailed and clear outline as to how the student plans to proceed to satisfy the objectives of the study, including treatments, replication, analytical techniques, and other pertinent information. A tentative timetable, sequence of events, and proposed budget of direct costs, including equipment and supplies, are suggested.

The project proposal should not be voluminous, but should clearly state specific plans. It is intended to assist the student in developing a program and to provide maximum benefit for the time and resources expended. After the proposal is complete, it must be presented to the rest of the advisory committee for approval at the student's first committee meeting. The approved proposal must be submitted to Lisa Gross to be maintained as part of the student's departmental file.

Publication of Research

Research is complete only after the results of that research have been published. All M.S. and Ph.D. graduates are expected to prepare one or more manuscripts suitable for publication. The major professor, in consultation with the student, will determine the type of and place for publication. Authorship should include the student, major professor, and anyone else who makes an important intellectual contribution to the work.

Responsible Conduct of Research

The research you conduct is funded and published by external agencies that have specific regulations about how data and associated metadata (instrument settings, sample details, etc.) are maintained and shared. In a university setting, the data you generate is owned by the institution, not the professor or the person who generated the data in the first place. In addition, the way in which data is collected and analyzed can differ among different disciplines and laboratories. As a result, the ethics of research and data management is a complex issue that requires the constant attention of researchers. As an introduction to this topic, all BTNY graduate students are required to take the course GRAD 612, Responsible Conduct of Research. All students are expected to adopt the data management practices of their lab.

Graduate Student Seminars

Graduate student participation in the seminar series is a crucial and integral part of the graduate education process. Students benefit by being exposed to new and different areas of science, meeting and interacting with renowned scientists from around the country and world, and observing many different and effective methods of presentations.

All students will present their final research seminar (exit seminar) before they graduate. It is expected that the student will present a high quality, professional seminar. At the discretion of the student's advisory committee, this may or may not substitute for the final defense seminar, typically given during the thesis/dissertation final defense. It is the responsibility of the student to see that they schedule the seminar through Pam Mow. Typically, this should be done during the semester prior to the one in which the student expects to graduate. Postponing the final examination is not justification for canceling a scheduled seminar.

Teaching Requirement (Ph.D. students only)

Graduate teaching assistantships are an important component of the graduate education process. Teaching assistantships help develop organizational, speaking, technical, and time-management skills. All Ph.D. students are required to serve as a graduate teaching assistant for a minimum of one semester during their program. All international graduate students must meet the university's English proficiency requirement before serving as a teaching assistant. This is a different requirement than required during the application process.

The specific semester in which a student is required to teach will be determined in consultation with the student's major professor, the department teaching coordinator, and the department head. As a general rule, a student will not be expected to teach in his or her first semester unless admitted on a teaching assistantship. The teaching coordinator and the instructor will determine the student's specific duties and course assignment. To the extent possible, the student's interest/expertise will be matched as closely as possible with the course assignment.

Time-to-Degree Policy

The length of time required for students to complete all requirements for an advance degree varies greatly with respect to the student's academic background, the type of graduate program and degree sought, the student's level of effort, as well as other factors. However, students must complete their degree requirements in a timely manner. For students to be competitive in the scientific arena, their coursework and research must remain current and relevant.

M.S.: The expected time period for completion of a M.S. degree is 2 to 3 years. If the degree has not been obtained within 3 years and the student has remained in good standing in the department, he or she may request a 1-year extension. The request must be submitted in writing and approved by both the student's advisory committee and the department head at least one semester prior to the end of the third year. Thus, the maximum allowable time to complete the M.S. degree is 4 years (3 years + 1-year extension). Students failing to meet this time requirement will be dropped from the program. A student in "good standing" is defined as one who has completed all required course work with a minimum of a 3.0 cumulative GPA and who is making satisfactory progress toward the completion of the M.S. research each semester as determined by the student's major professor and advisory committee.

Ph.D.: There is not an "average" time to complete the Ph.D. degree; however, it is expected that most students will complete all requirements within 4 to 6 years. The student should complete the preliminary examination by the end of the seventh semester. If the student does not complete all requirements within the 6-year period, and has remained in good standing in the department, he or she may request a maximum of two 1-year extensions. The request must be submitted in writing and approved by both the student's advisory committee and the department head at least one semester prior to the end of the sixth year. Thus, the maximum allowable time to complete the Ph.D. degree is 8 years (6 years + two 1-year extensions). This policy applies to all Ph.D. students regardless of whether they have a B.S. or M.S. degree prior to entering the Ph.D. Program. It also applies to students enrolled in one of the interdisciplinary programs, but who will ultimately graduate from the Department of Botany & Plant Pathology. Students failing to meet this time requirement will be dropped from the program. A student in "good standing" is defined as one who has completed all required course work with a minimum of a 3.0 cumulative GPA and who is making satisfactory progress toward the completion of the Ph.D. research each semester as determined by the student's major professor and advisory committee.

Graduate Core Curriculum

The Graduate Faculty have established the following courses that all graduate students are required to successfully complete before they will be eligible to graduate.

- **BTNY 590:** Graduate Orientation (1 cr.) – take during your first fall semester
- **BTNY 590:** Scientific Communication (1 cr.) – must take this course twice
- **BTNY 660:** Scientific Writing or **HORT 603:** Grants and Grantsmanship (1-2 cr.)
- **GRAD 612:** Responsible Conduct in Research (1 cr.)
- **STAT 503:** Statistical Methods for Biology (3 cr.) – may take equivalent course

Total: 8-9 credits

In addition to the core courses above, each student will take additional courses which will be determined in consultation of the students major professor and graduate advisory committee.

Plan of Study

Each graduate student admitted to a degree program must file a Plan of Study. This plan of study is an academic contract between the student and the faculty members of their advisory committee. Students must file their plan of study by the end of their second semester of enrollment. If this deadline is not met, the student will not be allowed to register for the next semester of courses.

Creating your Plan of Study

You can access the electronic plan of study form via [MyPurdue](#). To begin your plan of study, click on the Plan of Study Generator (POSG) link, then click on "Create new plan of study" link. Once in the POSG, refer to the Help buttons located on each page to assist you in using the electronic POSG. You do not need to complete the entire form in one sitting; you may save your plan of study and return to it later.

When you have completed your plan of study and feel it is ready for approval, submit your plan as "Final." The plan of study form will be electronically routed, reviewed, and, if approved, signed by the required parties. You may check the status of your plan at any time by returning to the POSG and clicking on the Display Submitted Plan of Study link. After the form has been completed and approved by the Graduate School it can be viewed, but not altered. Any changes to the plan require the electronic Change to Plan of Study form.

Plan of Study Guidelines

The department does not mandate how many course credits an M.S. or Ph.D. student should list on their plan of study. However, the College of Agriculture strongly recommends that M.S. students list approximately 24 course credits and Ph.D. students list 48 - 54 course credits on their plans of study, respectively.

Graduate courses taken while registered as a graduate student at Purdue University may be considered for fulfilling the plan of study requirements only if the student has received grades of C- or better. Courses taken at a different university or undergraduate level courses that a student wishes to use on their plan of study must have received a grade of B- or better. Your major professor may set a higher grade requirement for certain courses. You may use up to 6 credits of 300/400 level courses on your plan of study, so long as those courses were taken during a student's graduate career. **Courses graded on a pass/no pass or satisfactory/unsatisfactory basis cannot be used on a plan of study.**

See Lisa Gross for information on transferring courses or using undergraduate credit towards your advanced degree. Ph.D. students may apply up to 30 credit hours of courses taken during a Master's program towards their Ph.D. program. These courses are not listed individually on the plan of study, but are entered numerically by your major professor.

Formal Examinations

Final Examination for M.S. Students

For the M.S. degree, the final oral examination is a defense of the thesis, but the questioning may follow many directions. The student's advisory committee typically serves as the Master's Examining Committee. The Graduate School must be notified of a final examination at least two weeks prior to the actual examination date. For this reason, students should prepare the GS Form 8 (Request for Appointment of Examining Committee) and submit it online at least three weeks prior to the final examination date. If this deadline is not met, the Graduate School will not approve the final examination date.

Preliminary Examination for Ph.D. Students

The objectives of the preliminary examination are to assess the student's knowledge of the subject area, both in general terms and as it applies to his or her research, and to stimulate the student to develop original research ideas. There are two distinct parts to the examination:

1. The Written Preliminary Examination

1.1. The basis of the preliminary examination is the written portion of the examination. The student's advisory committee will choose one of the following options for the written portion:

1.1.1. Answer questions designed by the advisory committee and major professor to test general knowledge of the plant sciences, with emphasis on the student's particular sub-discipline of plant biology, plant pathology, or weed science. Questions will be presented to the student on a mutually agreeable date at least two weeks before the date of the oral preliminary examination. The student will submit to the major professor a written response to each question within one week (i.e. at least one week before the date of the oral preliminary examination). The examining committee for the oral preliminary examination will evaluate the written responses.

1.1.2. Defend a research proposal in writing. Written proposals are not to exceed 15 double-spaced pages, excluding the title page, references, figures, and figure legends. Font size is limited to 11 pt. Arial or 12 pt. Times New Roman. Excessive length may be considered grounds for not accepting the proposal. There are two options for the topic that your committee may choose from:

1.1.2.1. The topic can be your own research area, i.e. you may defend the approaches being actively pursued or planned in your own research. In this case, you should also be prepared to propose novel approaches that extend beyond the immediate plans of the research and thus reflect your own scientific creativity. A preliminary examination proposal that reflects only ideas previously conveyed by the major professor to you is unacceptable. A proposal on the student's own research will be expected to be developed with somewhat more rigor than one in an unrelated field.

- 1.1.2.2. The topic can be in an area unrelated to your research area. In this case, you should develop an original proposal that would advance the current state of knowledge in the chosen field.

2. The Oral Preliminary Examination

- 2.1. The oral preliminary examination is a comprehensive examination administered by a committee of four that is chaired by a faculty member other than your major professor. The other members of the Examining Committee are typically the same as the advisory committee. The major professor may only attend as a non-voting, silent observer. The student and major professor are responsible for selecting another faculty member to make up the fourth member of the examining committee. At least half of the members of the Examining Committee must be from Purdue's West Lafayette campus.
- 2.2. During the oral preliminary examination, the student will be asked to respond to questions of a general and specific nature. Questions are expected to examine the student's general knowledge of the plant sciences (particularly his or her specific sub-discipline of plant biology, plant pathology, or weed science) and the specific knowledge of his or her field of research. Questions related to the responses provided in the written preliminary examination also may be asked.
- 2.3. The Graduate School must be notified of an oral examination at least two weeks prior to the examination date. For this reason, students should prepare the GS Form 8 (Request for Appointment of Examining Committee) and submit it online at least three weeks prior to the final examination date. If this deadline is not met, the Graduate School will not approve the final examination date.

Once the examination is complete, a Report of Preliminary Examination Form must be sent to the Graduate School (this form is provided electronically to the examining committee by the Graduate School upon receipt of the GS Form 8). The student must pass the preliminary examination at least two semesters prior to the final examination. In addition to the rules of the Graduate School, the Department of Botany and Plant Pathology requires preliminary examinations to be completed within seven semesters of the start of the doctoral program (including summer semesters). If this deadline is not met, the student will not be allowed to register for the next semester of courses.

The student is admitted to doctoral candidacy upon satisfactory completion of the preliminary examination. If the report is unfavorable, the Examining Committee may recommend that the student be permitted to request a second examination by submitting a new request GS Form 8. The student must wait at least until the following session (including summer sessions) to repeat the examination. If failed twice, a student may not be given a third examination except upon the recommendation of his or her examining committee and with the special approval of the University's Graduate Council. The Examination Committee may instead recommend that the student not be allowed to continue in the Ph.D. Program, in which case the student may be eligible to continue for the M.S. degree.

Final Examination for Ph.D. Students

For the Ph.D. degree, the final examination is a defense of the student's dissertation. The Examining Committee for the final examination is typically comprised of the advisory committee and chaired by the major professor. It may include invited members from the department or other departments.

The Graduate School must be notified of a final examination at least two weeks prior to the actual examination date. For this reason, students should prepare the GS Form 8 (Request for Appointment of Examining Committee) and submit it online at least three weeks prior to the final examination date. If this deadline is not met, the Graduate School will not approve the final examination date.

Appendix A – Benefits and Grants

Graduate Student Benefits

Graduate students who have been awarded an assistantship may be eligible for many benefits provided by the university. Please see <http://www.purdue.edu/hr/audience/gradstaff.html> for eligibility and enrollment information.

You should also review the Graduate Staff Employment Manual for information on vacation time, sick leave, and other important employment details. You can find the manual online at: <http://www.purdue.edu/hr/pdf/GradStudentEmploymentManual.pdf>.

Any graduate student who wishes to take vacation or sick leave must submit an Absence Request Form 33A to the Business Office. You can track your available leave time through the Employee Portal.

Graduate Student Travel Award

The department, within budgetary limits, will award funds to selected graduate students to help offset travel expenses. The following guidelines and eligibility rules apply:

1. All full-time, enrolled graduate students in good standing in the department are eligible to apply for the award. A student in “good standing” is defined as one with a minimum of a 3.0 cumulative and semester GPA in the previous semester, who is current on all program deadlines, and who is making satisfactory progress toward the completion of research each semester as determined by the student’s grade in BTNY 69800 or 69900.
2. Priority will be given to students making an oral presentation in a mini-symposium or similar session, followed by those presenting a poster. Simply attending a meeting for networking opportunities is unlikely to garner support from the review committee.

A call for applications will be announced 2 times per calendar year. The applicants will submit the following:

1. A cover letter from the student that includes description of your proposed travel activity and how it will be beneficial to your professional development. If appropriate, please include the abstract for your presentation (a draft would be sufficient).
2. A brief statement from your major professor that he/she supports your attendance at the meeting/conference/workshop and indicating that sufficient lab funds exist to cover additional costs over \$500.
3. A short (one page max.) letter of support from a member of your thesis committee (not your major professor).

A faculty committee will review all applications and results will be announced as quickly as possible.

The departmental Graduate Student Organization also has travel awards available in increments of \$100. For domestic travel, applications must be turned in at least two weeks before the date of travel. For international travel, applications must be turned in at least three months before the date of travel. Students should contact the current Graduate Student Organization treasurer for travel applications.

Appendix B – Graduate Student Resources

Emotional Health Resources – Graduate school is challenging, not just intellectually, but emotionally. Counseling and Psychological Services, or CAPS, is committed to helping you achieve personal and academic success. Their primary goal is to assist students with their concerns before they develop into more serious problems. CAPS allows you access to therapists and psychologists who are specifically trained in college mental health. CAPS has several locations on campus, including inside PUSH and the PSYC building. You can call 765-494-6995 to make an appointment. For after-hours assistance contact the Crisis Center at 765-742-0244.

Physical Health Resources – The Purdue University Student Health center, or PUSH, is a doctor's office and Urgent Care facility located right on campus. They are located at 601 Stadium Mall Drive. Office hours are Monday-Friday 8 a.m. to 5 p.m.. Urgent Care hours vary and can be found at www.purdue.edu/PUSH/ For appointments and more information call 765-494-1700. If you have an emergency situation you should call 911.

Campus Safety – Purdue University has its own Police Department and Fire Department. The Police Station is located at 205 South Martin Jischke Drive and their non-emergency number is 765-494-8221. The Fire Department is located at 1250 W. Third Street, near the Recreational Facility. Their non-emergency number is 765-494-6919. If you have an emergency situation you should call 911.

Purdue Ombudsman – Ombudsmen are graduate students or professors trained to help and give advice on problems, concerns, and conflicts that arise through your graduate career. Visit their website at <http://www.purdue.edu/gradschool/student/ombudsman/index.cfm>

Appendix C – Preliminary Exam Rubric

	Poor	Fair	Average	Good	Exceptional
Written Component:					
1. Organization					
2. Grammatical correctness					
3. Presentation of background information					
4. Clear statement of hypotheses					
5. Research literature citations					
6. Clarity of experiments and includes appropriate controls					
7. Appropriateness of experiments to test the hypothesis					
8. Expected results from experiments are discussed					
9. Originality and creativeness of proposal					
10. Discussion of potential problems and pitfalls					
Oral Component:					
11. Clarity and organization					
12. Effectiveness of communication skills					
13. Clear and complete responses to questions					
14. Contextual understanding of the research					
15. Breadth and depth of knowledge in the subject matter					

Appendix D – Final Exam Rubric

	Poor	Fair	Average	Good	Exceptional
Written Component:					
1. Thesis organization and presentation					
2. Grammatical correctness of thesis					
3. Data presentation					
4. Appropriateness of statistical and analytical methods used					
5. Use of critical thinking skills in the thesis					
6. Conceptual understanding of thesis research					
7. Significant new information included in thesis					
8. Publication potential					
Oral Component:					
9. Oral presentation/seminar clarity and organization					
10. Effectiveness of communication skills					
11. Student's ability to provide clear and accurate answers to questions					
12. Contextual understanding of the research					
13. Breadth and depth of knowledge in the subject matter					