

Graduate Student Handbook
Plant Pathology Graduate Program
University of California-Davis

Revised September 2021

Welcome

Welcome to the Plant Pathology Graduate Program at the University of California Davis. This handbook is designed to provide you with some basic information about the Plant Pathology Graduate Program and to assist you in developing your plan of study and research at UC Davis. The UC Davis General Catalog and the UC Davis Plant Pathology website, <http://www.plpnem.ucdavis.edu>, provide information about courses and faculty research programs. General information regarding the University graduate program can be obtained from the Graduate Studies Office (room 252 Mrak Hall; phone: 752-0650; URL <http://gradstudies.ucdavis.edu>).

Graduate Advising

As a graduate student, you will have two types of advisers:

Graduate Adviser-Your Graduate Adviser is a faculty member in the Plant Pathology Graduate Program and is not your Thesis (research) Advisor. Your Graduate Advisor is a member of the Graduate Affairs Committee, assists you in meeting the graduation requirements set forth by the Graduate Division and, together with your Thesis Advisor, helps you plan your schedule of courses. The graduate adviser has formal responsibility for initiating faculty appointments to masters and PhD qualifying examinations (see section on qualifying examination, below) and thesis committees. You should meet with your graduate adviser at the outset of your first year to plan your course schedule and again in each year in which you are enrolled in courses to make adjustments in your program.

Thesis Advisor/major professor-This is the member of the Plant Pathology Graduate Program faculty with whom you will carry out your research. Your Thesis Advisor will help you to identify a research problem and design, carry out and interpret experimental and/or theoretical work intended to answer the questions associated with that problem.

Your Thesis Advisor and your Graduate Advisor will not be the same person.

Most students will begin working with their major professor during their first quarter, according to arrangements made at the time of your admission to graduate school. However, depending on your source(s) of support, you may have the option to arrange for short periods of research experience in different laboratories (“laboratory rotations”) in order to have a variety of research experiences and to determine which program is best for you. If you are able to take advantage of laboratory rotations, you are encouraged to familiarize yourself with the Plant Pathology Graduate Program faculty and the full range of plant pathology research programs. Choosing your Thesis Advisor is a very important, career-affecting decision.

A **guidance committee**, composed of the major professor and two other professors familiar with the proposed area of research, is to be appointed for each PhD and MS student no later than the third quarter of the first year. A fourth member may be added with justification. The membership of the guiding committee will be determined in consultation with the Thesis Advisor and the Graduate Advisor. The purpose of the guidance committee is to provide research mentorship early in the student's tenure. You are encouraged to meet with members of your guiding committee as often as needed. The entire committee should meet at least once during your first year and, for a PhD student, twice prior to your qualifying examination.

After successful completion of the qualifying examination by a PhD student, or after a MS Plan I (see below) student has selected a research topic, the guiding committee is dissolved and is replaced by the **thesis committee**. Your Thesis Advisor is the chair of your thesis (Masters or PhD) committee. The members of the PhD thesis committee are appointed in consultation with your Thesis Advisor and Graduate Advisor. Typically, the thesis committee has two faculty members of the Plant Pathology Graduate Program in addition to the thesis advisor but may be constituted with faculty member(s) from outside the Program and may have up to four members. The student should meet with the thesis committee at least once a year until the requirements for the degree have been satisfied.

Degree Requirements

I. General Information

- a. Within the Program, student admissions, fellowship and other financial aid decisions, and various other student affairs matters are handled by the Graduate Affairs Committee.
- b. Incoming students must consult with their graduate adviser and major professor to determine if all undergraduate prerequisites have been fulfilled.
- c. A student is not required to complete a master's degree (MS) before being admitted into the PhD program. Students initially admitted into the MS program can petition to change to the PhD program without completing the MS degree after satisfactory progress is demonstrated in courses and research. For students not completing the master's thesis, the change to the PhD program must be completed before the ninth quarter of enrollment (3 years) because the qualifying exam is to be scheduled within this same time period (see information on the qualifying examination). To change to the Ph.D. program, the student prepares a petition that is submitted by the graduate adviser to the Graduate Affairs Committee for consideration.

II. Academic requirements for the Master's Degree (MS) in Plant Pathology

There are two plans under which a student may obtain a master's degree, Plan I (by research thesis) and Plan II (by course examination).

Plan I. The student must complete at least a total of 30 units of upper division undergraduate and graduate courses (includes the plant pathology required courses; 12 units must be strictly graduate work) and submit and gain approval of a master's thesis. A thesis committee of 3 faculty members (one of whom is the major professor) is responsible for guiding the student's thesis research and thesis preparation and must approve the final thesis. This committee is recommended by the graduate adviser and must be formally appointed by the Dean of Graduate Studies. The thesis committee will replace the guiding committee that is appointed during the student's first year.

Plan II. The student must complete at least 36 units of upper division undergraduate and graduate courses (18 units must be graduate courses in the major subject and no more than 9 of the 18 units may be from research courses (299)). No thesis is required, but the student must pass a comprehensive final examination that is administered by a committee of 3 faculty members (one of whom is the major professor). This committee is nominated by the graduate adviser and formally appointed by the Chair of the Graduate Council.

Course requirements for the Master's degree (effective for students entering in Fall 2021)

All MS students must complete the following course requirements:

1. PLP 201A, Impacts, mechanisms & control of Plant Disease (focus on plant pathogenic organisms) - Fall quarter, 4 units
2. PLP 201B, Impacts, mechanisms & control of Plant Disease (focus on Ecology and Epidemiology of Plant Disease) - Fall quarter, 3 units
3. PLP 202A, Field Plant Pathology- Disease detection, control, and management - Spring quarter odd years, 5 units (+ PLP 202B, 4-day summer component)
4. PLP 210, Biochemistry and molecular biology of Plant-Microbe Interaction - Winter quarter, 4 units
5. PLP 290 - Department Seminar - every quarter unless there is a class scheduling conflict, 1 unit
6. PLP 209C - In-progress Seminar, 1 unit

Additional requirements for the Master's degree

a. Teaching

Students pursuing a master's degree may, or may not, be asked to serve as a teaching assistant (TA) for one quarter. Students can approach instructors directly regarding the possibility of being a TA for a specific course, but the final decision on appointments of TAs rests with the Department Curriculum Committee.

b. On-campus residence* requirement and time to complete the degree

Students working toward a master's degree must be registered and on campus for at least 3 quarters. The targeted time frame for the completion of the master's degree is 6 quarters (2 years).

*Note: The university defines 'in residence' as being students who are registered in regular university courses for at least four units of upper division or graduate courses in a quarter, or for at least two units of such work in two sessions of Summer Session.

III. Academic requirements for the Doctor of Philosophy Degrees (PhD) in Plant Pathology (effective for students entering in Fall 2017)

Course requirements for the PhD are the same as those listed for the Master's degree. In addition to these "core courses" Ph.D. students must take two additional elective courses minimum of 3 units. PhD students are encouraged to have one elective focus on quantitative biology/statistics/experimental design. Well-justified upper division undergraduate courses are acceptable, to be selected in consultation with your Thesis Advisor and Graduate Advisor.

Potential elective courses

The below list, while not exhaustive, reflects student and faculty input, and can serve as a starting point for selecting elective coursework.

Quantitative/statistics/experimental design

PLS205 Experimental Design and Analyses
 ECL243 Ecological Genomics
 EVE231 Principles of Biological Data Analysis
 classes in the Integrated Genetics and Genomics Core

Pathogen

PLP228 Bacteriology
 PLP130 Fungal Biology and Disease (PLP224 no longer offered)
 PLP 148 Introductory Mycology
 PLP230 Virology
 ENT 290 Host-Vector Manipulation
 NEM204 Nematology Management
 NEM201 Molecular and Physiological Plant Nematology
 EVE298 Microbiome methods journal club
 MIB 200A Microbial Biology
 MIC262 Advanced General & Molecular Virology
 PMI214 Vector-borne infectious diseases
 MMI 200D Mechanisms for Microbial Interactions with Hosts
 PLP123 Plant Virus Vector Interactions

Plants

HYD124 Plant water relations
 PLS100B Growth and Yield of Cultivated Plants
 Plant Biology Core Class

Extension

PLS298 Extension, Outreach and Science Communication
 ANB290 Alternate Extension: Science communication tools for the modern era
 ECL298 Social Ecological System
 UWP298stem Introduction to Graduate Writing, STEM

Additional Requirements for the PhD

a. Qualifying (sometimes called a preliminary) examination for the PhD

i. *Purpose of the exam.* The purpose of the qualifying examination is to determine if the student has the intellectual capacity and preparation necessary to successfully conduct independent research and complete a doctoral dissertation. Thus the student is expected to demonstrate an in-depth understanding of the basic principles of plant pathology and related areas, to effectively present and defend a dissertation proposal that involves novel and independent research, to respond effectively to in-depth questions about their proposal, plant pathology in general, and other fields of science related to their area of study, to interpret data and to propose logical methods for investigating new research problems.

ii. *When must the qualifying exam be taken?* **Students must take the qualifying exam before the beginning of their tenth quarter as a registered student in the Plant Pathology Graduate Program.** However, it is often feasible and appropriate for students to take the exam after two years when, in most circumstances, all of the courses required for the major have been completed. A student can NOT take the qualifying exam until all of the course requirements have been satisfied. Ph.D. students should consult with their graduate adviser and major professor concerning the scheduling of their exam. Students who have been admitted into the Plant Pathology Graduate Program for a master's degree and who change their degree goal to a PhD without completing a master's thesis remain subject to the 9-quarter limitation (i.e. you cannot enroll for the 10th quarter without having taken your qualifying exam). Students who complete a master's degree and continue for a Ph.D. have an additional 9 quarters before they must take the qualifying exam. Students must be registered for the quarter in which they take the exam and have a "B" average in all work undertaken in graduate standing. The student's Graduate Adviser must certify that all course requirements have been satisfied before the qualifying exam can be taken.

iii. *Selection of the Qualifying Examination Committee.* The qualifying exam committee consists of 5 members. Four must be faculty members in the Plant Pathology Graduate Program, one of whom serves as the chairperson. One member may be from outside the program (e.g., a faculty member from another UC Davis department or a faculty member from another institution). The student's Thesis Advisor cannot serve on

the qualifying exam committee. USDA faculty cannot serve on qualifying exam committees.

At the start of Spring Quarter, students that are eligible to complete their QE within the next year will be contacted by the graduate program coordinator and asked to provide the following:

1. Abstract of their dissertation research (maximum 300 words)
2. Proposed areas of defense (three areas)
3. Names of three potential external members
4. Names of two potential internal members
5. Any members that should be excluded based on comfort or perceived conflict of interest

Academic Advisors will meet in March to assign committee members for Qualifying exams. The goal will be to include one external and one internal member from the student's proposed list. Students are not expected to contact internal or external members, but rather provide names for consideration. The graduate program coordinator will then notify external and internal members of their assignment on the QE and get member approval for service. Once the committee members agree, the students are notified. Students will be expected to coordinate their QE exam date and time.

Once the qualifying exam committee has been approved by the Graduate Affairs Committee, it is forwarded to Graduate Studies, wherein the Chair of the Graduate Council is responsible for final approval.

v. What is the content of the qualifying exam? All students are presumed to possess a strong basic knowledge and understanding of plant pathology. In addition, **three specific areas will be defended**. These areas (listed below) are usually selected by the student in consultation with the Graduate Adviser and/or Thesis Advisor. Students may propose alternative specialty areas, but these must be approved by the Graduate Affairs Committee.

In the qualifying examination, **students should expect to defend their thesis research in detail**. Students should prepare a concise dissertation proposal to be given to the members of the qualifying examination committee at least two weeks before the examination date. Research proposals should be no longer than 5 pages single spaced, 12-point font, 1" margins. This page limit does not include the title page, references, figures/tables, or figure/table legends. Students are expected to be the primary authors on the proposal. Guidance by research advisors is encouraged, but the writing should be in the student's voice. **Students are encouraged to seek feedback on their proposal and guidance on preparing for areas of defense from their qualifying exam committee members prior to their examination**. Students should consult with the chair of their qualifying exam committee concerning the manner in which the research proposal should be presented during the exam. Approximately one to 1.5 hours of the examination will be devoted to the presentation and defense of the proposal. The committee chair will be responsible for ensuring that the time devoted to this portion of the exam is properly balanced with broader coverage of the subject areas being defended.

Examples of Areas for Defense in the Qualifying Examination

1. Bacteriology
2. Mycology/Plant Pathogenic Fungi
3. Virology
4. Nematology
5. Molecular Host-Pathogen Interactions
6. Epidemiology
7. Soil Microbiology
8. Ecology of Infectious Disease
9. Vector-Borne Disease
10. Integrated Pest Management

b. Teaching

Each Ph.D. student is required to be a teaching assistant (TA) for at least one quarter. Students can approach instructors directly regarding the possibility of being a TA for a specific course, but the final decision rests with the Department Curriculum Committee. The Department reserves the right to have a student TA for more than one quarter depending on the circumstances. Students also can be TAs in courses outside of the Plant Pathology Department; however, they should consult their major professor and graduate adviser before accepting such a position.

c. Advancement to Candidacy and Appointment of a Dissertation Committee.

the course of the student's research, the student should begin to think about the composition of the dissertation committee. The dissertation committee consists of three faculty members one of whom is the Thesis Advisor. Faculty members from outside the Plant Pathology Graduate Program may be members of the dissertation committee. Once the student has passed the qualifying examination, he or she meets with the Thesis Advisor to formally designate a dissertation committee. The dissertation committee may include some or all of the members of the guiding committee, which will be dissolved once the dissertation committee has been approved. The dissertation committee must be approved by the Executive Associate Dean of Graduate Studies. Students are encouraged to meet with their dissertation committee on a regular basis.

d. Dissertation

Each student must submit a dissertation that meets the approval of all members of the thesis committee. The research that is the subject of this dissertation is initiated with the input of the major professor and is conducted under the guidance of this individual and the thesis committee. As soon as a thesis committee has been selected, the student should meet with the committee to obtain further guidance concerning the direction and content of the student's thesis research. During the course of a student's PhD research, the student can request a committee meeting at any time, and, minimally, the thesis committee should meet once per year. The final dissertation must be approved by the dissertation committee and Graduate Studies before the PhD is conferred. There is generally no final or dissertation defense, although the committee may choose to ask the student to defend the dissertation research before the committee. Detailed instructions regarding the format of the dissertation can be obtained from Graduate Studies.

e. Exit seminar.

All students are expected to present to the department a seminar on their dissertation research. In order to insure the requirement for the exit seminar met, the Thesis Advisor will not sign the student's dissertation until the exit seminar has been presented or is scheduled to be presented in the near future.

f. On-campus residence requirement and time to complete the degree

Students working toward a PhD must be registered and in university residence for a minimum of six regular quarters. The normative time to complete a Ph.D. ranges from 4-6 years and is measured from the time a student begins graduate study at UC Davis. Up to three quarters of non-registered status is allowed.

IV. Other activities/information

1. Financial Aid

Financial aid is available in the form of fellowships and various other programs. The deadline for applications for UC Davis fellowships is January 15. Students can obtain information about financial aid from the graduate adviser, the Office of Graduate Studies, and from other sources. Students should be aware that the criteria for different awards vary. ALL graduate students are strongly encouraged to complete the federal FAFSA financial eligibility form that is available on-line from the Graduate Division. Often special funds become available during the course of the year and only students that have filled out the FAFSA form can be considered for these funds.

2. Graduate Student Associations

Students may elect to participate in the Graduate Student Association (GSA), Department of Plant Pathology Students (DOPPS) organization, and in other departmental or campus committees. The DOPPS sponsors an annual Fall Social to introduce new students to students, faculty, and staff. Positions within DOPPS and the GSA are determined through a vote of the memberships. Some Department committees include a student member, who is appointed by the Department Chair

3. Participation in the Plant Disease Clinic

The Plant Disease Clinic is run by the DOPPS organization and is responsible for the diagnosis of samples submitted by homeowners. Samples submitted by growers or farm advisers are the responsibility of the extension specialists.

4. Desk assignments

In most cases, students will be assigned a desk in their major professor's laboratory. If space is not available in the lab, a student will be offered desk space in the graduate student room (historically called the "grad file"). Those students that need a desk should meet with the President or Vice President of DOPPS to obtain a desk assignment.

V. Some general comments on UC Davis, courses, etc:

1. **UC Davis is divided into four colleges:** i) Agriculture and Environmental Sciences (CAES); ii) College of Biological Sciences, iii) Engineering; and iv) Letters and Science (L&S)

The Department of Plant Pathology is in CAES

2. **Graduate programs are administered under the Office of Graduate Studies (room 252 Mrak Hall).** This office is headed by the Dean of Graduate Studies. A Graduate Council composed of faculty members, the graduate dean, and representatives of the Academic Staff Organization and the Graduate Student Association is concerned with Graduate Student matters, unusual student petitions, and other actions.

3. **Undergraduate courses** are numbered: 1-99 (lower division)
100-199 (upper division)

Graduate courses are numbered: 200-299

4. **The College of Biological Sciences** is composed of five departments: i) Evolution and Ecology; ii) Microbiology; iii) Neurobiology, Physiology and Behavior; iv) Molecular and Cellular Biology; and v) Plant Biology.

5. **Talk to your fellow students about their experiences with courses and other aspects of the graduate program; they are an invaluable resource.**