

University of Florida College of Pharmacy
Department of Pharmacodynamics

Graduate Program Handbook

(Updated Spring 2022)

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A. Broad overview of the Graduate Program in the Department of Pharmacodynamics

1) Mission Statement

The mission of the Department of Pharmacodynamics is to excel in teaching, research, and service. Our research program aspires to offer a unique perspective on drug development, targeting, and validation via detailed studies of basic physiology, pathophysiology, and drug action in both peripheral and central systems. Work performed in Departmental laboratories contributes directly to both the educational and research mission of the University, College, and Department as described by the Board of Governors and the [University of Florida](#). Graduates of our Ph.D. program will be well prepared for a range of careers in academic research, industry, education, and regulatory agencies. Departmental faculty also aspire to excel in professional service in both intramural and extramural capacities. These additional professional activities support the broader research enterprise in the State and Nation, contribute to University and College governance, disseminate knowledge, and serve the public good.

2) Program Objectives

The major objectives of our Ph.D. Program in Pharmacodynamics are:

- a) To provide broad training for graduate students in the area of Pharmacodynamics (a specific branch of Pharmacology that focuses on studying how a drug affects the functions of an organ and the underlying mechanisms of action) and the disciplines which it embodies (i.e. physiology, pharmacology, neurosciences, and toxicology).
- b) To provide in depth didactic and research training in specialized areas of Pharmacodynamics.
- c) To provide ongoing research programs which allow students to expeditiously pursue their particular research interests and to complete their Dissertations.
- d) To foster the development of student's written and oral scientific communication skills relevant to establishing a career as an independent investigator/scientist in an academic, industrial and/or regulatory setting.

3) General Structure of the Program

The first year of the program is composed largely of required didactic coursework and research rotations. Students will identify a faculty advisor in the Spring of their first year, who will serve as their Supervisory Chair and dissertation mentor.; see section B.7 for information on forming a Supervisory Committee. During the second-year students continue with a mix of required and elective didactic coursework while also working to learn techniques and develop a dissertation proposal with their academic mentor. A dissertation supervisory committee is formed during the Fall semester of the second year (i.e., the 4th semester since entering the program). **Students must take the qualifying exam, administered by the dissertation committee, by the end of the Fall term in their third academic year** (i.e., the 7th semester since entering the program). **A delay in taking the qualifying exam requires consultation with and approval by the graduate coordinator and the department chair.** By passing the qualifying exam, students become Ph.D. degree candidates. Throughout the program, students are required to participate in the departmental seminar/journal club series and are expected to work with their faculty advisor, supervisory committee, and graduate coordinator to identify appropriate elective coursework. Students are required to meet annually with their supervisory committee to discuss their research goals and progress, although biannual meetings are strongly recommended. Students will participate in annual performance reviews and receive feedback on their progression from their faculty advisor. Most students

take ~3 years to complete their dissertation work after passing the qualifying exam. When deemed ready by both the academic mentor and the dissertation committee, students then write a formal dissertation and defend it in an oral exam. Successful defense of the dissertation and confirmation of achieving Final Clearance from the Graduate School will result in the completion of the Ph.D. program. The degree will be formally awarded at the UF Doctoral Commencement ceremony at the end of the term. Additional information on each major aspect of the program is provided below in Section B on 'Policies and Procedures'.

B. Policies and Procedures

1) Coursework for Students in their First Academic Year

Students register for 9 hours of academic credit per fall and spring term and 6 hours per summer term, throughout their graduate career. The graduate curriculum during the first three terms is the same for all students who enter the program. Changes to the required coursework in the curriculum during the first three terms require approval of the Graduate Coordinator and Department Chair, and may come to a vote of the departmental faculty. Notice that PHA6894 (Introduction to Graduate Studies), 6935 (Life Cycle of a Drug), and PHA6936 (Grant Writing) are attended by first or second year graduate students of the entire college and that PHA6984 is a year-long course starting the Fall of the first year. (*, denotes required courses.)

Year 1 Fall Term		
Course #	Course Title	Hours
PHA6508 (*)	Systems Physiology and Pathophysiology-I	3
PHA6521C (*)	Research Techniques in Pharmacodynamics (Methods)	1
PHA6512L (*)	Experiential Res. Training in Pharmacodynamics (Rotations 1 & 2)	4
PHA7939 (*)	Journal Club in Pharm Sciences	1

Year 1 Spring Term		
Course #	Course Title	Hours
PHA6509 (*)	Systems Physiology and Pathophysiology-II	3
GMS 6009 (*)	Principles of Drug Action / Pharmacology	3
PHA6512L (*)	Experiential Research Training in Pharmacodynamics (Rotation 3)	2
GMS7877 (*)	Responsible Conduct of Biomedical Research	1

Year 1 Summer Term		
Course #	Course Title	Hours
PHA6894 (*)	Introduction to Graduate Studies	1
PHA6935 (*)	Life Cycle of a Drug	1
PHA6910 (*)	Supervised Research	2-4
	Elective Courses	0-2

2) Coursework for Students in their Second Academic Year

Year 2 is a blend of required coursework, elective coursework, and mentored research. Policy on required coursework for year 2 is the same as that for year 1. **Students wishing to take elective coursework are required to consult with their mentors and to obtain approval by the Graduate Coordinator.** Notice that PHA6910 (Supervised Research) has a combined maximum of 5 credit hours for a student in the program.

Year 2 Fall Term		
Course #	Course Title	Hours
PHA7939 (*)	Journal Club in Pharm Sciences	1
PHA6936 (*)	Scientific Writing	1
STA6616 (*)	Statistical Methods in Research I	3
PHA6910 (*)	Supervised Research	2-4
	Elective Courses	0-2

Year 2 Spring Term		
Course #	Course Title	Hours
PHA6938 (*)	Research Seminar	1
PHA7979 (*)	Advanced Research (Before passing prequalifying exam)	5-8
	Elective Courses	0-3

Year 2 Summer Term		
Course #	Course Title	Hours
PHA6936 (*)	Fundamentals of Grant Writing in Pharm Sciences	1
PHA7979 (*)	Advanced Research (Before passing prequalifying exam)	3-5
	Elective Courses	0-2

3) Coursework for Year 3 and Beyond

Students are required to take PHA7939 (Journal Colloquy) in the Fall term and PHA6938 (Research Seminar) throughout the entire duration of the program. Students register for PHA7980 for research post qualifying exam. Additional elective courses may be taken with consultation with mentor and approval by the Graduate Coordinator.

Year 3-5 Fall Term		
Course #	Course Title	Hours
PHA7939 (*)	Journal Club in Pharma Sciences	1
PHA7980 (*)	Doctoral Research (After passing prequalifying exam)	6-8
	Elective Courses	0-2

Year 3-5 Spring Term		
Course #	Course Title	Hours
PHA6938 (*)	Research Seminar	1
PHA7980 (*)	Doctoral Research (After passing prequalifying exam)	6-8
	Elective Courses	0-2

Year 3-5 Summer Term		
Course #	Course Title	Hours
PHA7980 (*)	Doctoral Research (After passing prequalifying exam)	4-6
	Elective Courses	0-2

Performance Requirements

Students must maintain an overall GPA of 3.0 or better for each semester. Failure to meet academic standards in the didactic coursework may result in academic probation or dismissal from the program.

4) Research Rotations

Three research rotations in Departmental laboratories are required. Each rotation is approximately seven weeks in duration. During that first several weeks of the first semester, students are exposed to all core research faculty and labs through activities in the Research Methods Course and/or in the Systems Physiology and Pathophysiology course. These activities are designed to assist students in providing adequate preparation to participate in experimental work and in making informed requests for laboratory rotations. Students submit requests for specific rotations to the Graduate Coordinator at the end of the Research Methods Course, and specific assignments are made by the Graduate Coordinator in consultation with the Department Faculty. The first two rotations are completed in the first semester of the first year. The third rotation is completed during the second semester of the first year.

5) Choosing a major advisor

When rotations are complete, students may discuss their experiences and interests with all supervising faculty, as well as with the Graduate Coordinator and Department Chair. After these discussions, students make a formal request to join a specific lab. *As with the rotational experiences, entry into any given lab is not guaranteed, but must be approved by the PI, the Graduate Coordinator, and the Department Chair.* If a successful match is not made after three rotations, students may petition the Graduate Coordinator to complete a fourth rotation during the second half of the Spring term. The Graduate Coordinator, the proposed laboratory PI, and Department Chair will meet to make a final decision on whether to support a fourth rotation. **Students who do not successfully match into a dissertation lab by the end of the Spring term of the first year may not continue in the program.**

6) Advancement to Candidacy

After joining a lab during the Spring term of the first year, students begin to work with their academic mentor to assemble a supervisory committee, develop a dissertation proposal, and complete the qualifying exam. Advancement to candidacy is defined by successful completion of all aspects of the qualifying exam.

Section B.7 (below) provides detailed information on expected timing for forming a supervisory committee, and on requirements related to committee membership and meetings. Section B.8 (below) provides detailed information on expected timing and detailed requirements for completing the qualifying exam.

7) The Supervisory Committee

Composition of the Supervisory Committee

The supervisory committee consists of the student's academic mentor (who serves as Chair of the Committee), two additional members of the Graduate Faculty whose primary appointment is in the Department of Pharmacodynamics other than the academic mentor, and one external member. At least two of the committee members must be the full-time faculty members of the Department of Pharmacodynamics. The external member must be a member of the graduate faculty at the University of Florida but may not be a member of the College of Pharmacy. All final committee rosters must be approved by the Graduate Coordinator.

In specific cases, additional faculty may be appointed to the committee at the request of the Committee Chair (communicated to the Graduate Coordinator):

- Additional members from within the University of Florida that are existing members of the Graduate Faculty may be appointed to the Committee with the approval of the Graduate Coordinator.
- Additional members that do not hold graduate faculty status at the University of Florida, including persons not affiliated with the university, may be appointed to a supervisory committee as a Special Member. If approved by the department, the Special Member may serve on an individual student's committee as an additional member only and may not serve as the chair, co-chair, or External Member. Requests for more information about adding a Special Member should be directed to the COP Office of Graduate Programs.

Timing for forming the Supervisory Committee

Students should identify Departmental members of their supervisory committee by the end of the Spring term of their first academic year, and must have a full supervisory committee for their dissertation research formed and approved no later than the end of Fall term of their second academic year. Requests for an extension of either of these deadlines should be made by the academic mentor to the Department Graduate Coordinator. To the extent possible, it is recommended that the full committee is formed by the end of the Summer term of the first academic year.

Meeting requirements for the Supervisory Committee

The Supervisory Committee is required to meet at least once per year. It is recommended that the supervisory committee have an initial meeting after formation (in Spring of the first year) or during the Summer term after the first year, and at least one additional meeting no later than the midpoint of early in the Spring term of the second year. This is the term when the committee is charged with administering the written portion of the qualifying exam (see Section B.8 below). *After that, the committee is required to meet at least once per year.* Additional meetings are encouraged but not required. A higher frequency of meetings is likely during the Fall term of the third year (when the student writes their dissertation proposal and completes the oral portion of the qualifying exam), and during the last term in the program (when the student writes and defends their final dissertation). All committee meetings must be documented on appropriate forms as provided by the Office of Graduate Programs in the College of Pharmacy. Completed forms documenting each meeting are submitted to both the Office of Graduate Programs and the Department Graduate Coordinator. Detailed goals for the initial committee meetings are described in line with policies and procedures for the Qualifying exam (below).

8) The Qualifying Exam

Structure of the Qualifying Exam

The qualifying exam has four major components: an open book written exam, the written dissertation proposal, the departmental seminar, and the oral exam. Each is described in greater detail below. They are to be completed in the order listed.

Written exam: The written exam is an open book essay exam where the student provides written answers to questions provided by the committee. The committee is tasked with picking questions for the written exam that allow the student to demonstrate background knowledge of the broad academic field in which they intend to work, and in-depth knowledge of the techniques they propose to use. The committee should coordinate development of the exam so that there are 1-2 questions from each committee member, with minimal overlap between questions. Questions from the committee Chair (student's academic mentor) may be used at the discretion of the committee. The overall number and scope of questions should lead to an exam the student can reasonably complete in ≤ 2 weeks.

Dissertation proposal: The dissertation proposal is typically written in the format of a predoctoral training grant, with overall structure and core science sections consistent with NIH guidelines (i.e., 6-page limit for Aims, Significance, Innovation, and Approach sections combined, using standard NIH formatting rules). That said, detailed formatting and page limits are at the discretion of the committee.

Departmental Seminar: On the day of the qualifying exam students give a seminar to the department covering their research progress to date and presenting their proposed research plan. This is a public seminar open to all faculty and students. After the seminar there is a question-and-answer session where students field questions from all members of the audience *except* for members of the dissertation committee. This public seminar should be 30-45 minutes in length.

Oral Exam: The oral exam occurs immediately after the public seminar. During this exam students field questions from the supervisory committee (excluding the committee Chair / research mentor) on their research proposal. Students are expected to engage in these conversations at a high level, and to be able to credibly explain and defend the proposed research plan.

Timing of the Qualifying Exam

Students are required to complete written component of the qualifying exam during the Spring term of their second academic year, and to complete all additional components of the qualifying exam by the end of the Fall term of the third academic year. Any extension beyond that deadline requires the approval of the Committee Chair (the student's academic mentor), the Graduate Coordinator, and the Department Chair.

As long as the above deadlines are met, detailed timing of the individual components of the qualifying exam may be set with some discretion from the committee. Specifically:

For the written component of the qualifying exam (during Spring term of the second academic year), committees are encouraged to allow no more than two weeks for students to complete the exam after receiving questions, and to provide feedback (including a pass/fail grade) within two weeks of receiving student responses.

For remaining components of the qualifying exam (completed no later than the Fall term of the third academic year) it is suggested that students turn in the written dissertation proposal to the committee two weeks before the date of the departmental seminar and oral exam.

Grading of the Qualifying Exam

All four components of the qualifying exam (the written exam, the written dissertation proposal, the departmental seminar, and the oral exam) are graded by the committee on a pass/fail basis. A passing grade on the written exam requires a passing grade on every question. A passing grade on each of the remaining components (the dissertation proposal, the departmental seminar, and the oral exam) is necessary to fully complete the qualifying exam. For each component, committee support for a passing grade must be unanimous. When the qualifying exam is passed, the student becomes a degree candidate.

Options for remediation (if necessary)

Written exam: At the discretion of the committee, the student may, or may not, be allowed one opportunity to remediate any aspect of the written exam where performance was not passing. If necessary, satisfactory remediation of the written exam would ideally be completed during the Spring term of the second academic year, but must be completed before the end of the summer term in the second Academic year.

Oral exam: At the discretion of the committee, a student who does not pass the oral exam may, or may not, be allowed one opportunity to retake the exam, with or without the public seminar. Per University policy, a student who is approved to re-take the oral exam must spend at least one additional semester in preparation. This means that a second attempt may not be made in the same or subsequent semester as the original exam.

Dissertation proposal: Students who have passed the written and oral exam may be required to make revisions to the written dissertation proposal. The extent and timing of such revisions may be set at the discretion of the committee.

Students who have still not passed the qualifying exam after exhausting the above options for remediation will be dismissed from the program.

Submission of dissertation proposal as an extramural grant

The decision on whether to revise and submit the dissertation proposal as an extramural training grant is made by the student and the academic mentor, ideally in consultation with the supervisory committee. While all students (and mentors) are encouraged to strongly consider this possibility, submission of an extramural training grant is not a requirement for passing the qualifying exam.

9) Time as a Degree Candidate

Students typically spend 3 years between passing the qualifying exam and final defense of their dissertation. During their time as degree candidates, students continue to register for the Departmental Seminar and Journal Club, may still take elective courses with approval of their academic mentor and the Graduate Coordinator, and work towards completion of their degree in the dissertation lab. Post-qualifier students have the option to register for a different Journal Club available on campus, with approval of their mentor and the Graduate Coordinator.

10) Dissertation and Defense

When deemed ready by both the supervisory committee and the academic mentor, students write and defend their dissertation. The format of the written dissertation must adhere to all policies and procedures of the Graduate School, must be given to the dissertation committee at least two weeks before the date of the final defense, and must adhere to all other University deadlines. Procedures for the dissertation defense mirror those of the qualifying exam, with students giving a public seminar to the

Department on their research progress, followed by a closed oral exam with the supervisory committee. There is no additional written exam prior to the dissertation defense. Successful completion of the dissertation and the defense is the final requirement for successful completion of program.

11) Annual Evaluation and Annual Progress Report and Monitoring

Students will be evaluated by their mentor at the end of each academic year starting with first year students. The mentor is required to provide a written evaluation of the student's performance following the guidelines of College's Office of Graduate Programs. The student and the mentor are required to meet to discuss the evaluation and submit the signed evaluation form to the College's Office of Graduate Programs by the established deadline each year.

Students are also required to meet with the Graduate Coordinator in July or August each year to review and monitor the student's performance in coursework, research and GA duties and the student's progress or plan on the formation and functionality of dissertation committee, qualifying exam, and dissertation defense.

12) Milestones

Year 1: Fall Term (1st semester in the program): Selection of research rotation laboratories.

Year 1 Spring Term (2nd semester in the program): Selection of dissertation research laboratory and departmental members of the supervisory committee. External member may be added during Summer term of first year, or Fall term of second year if necessary).

Year 2 Spring Term (5th semester in the program): complete written portion of the Qualifying Exam.

Year 3 Fall term (7th semester in the program): Submit completed dissertation proposal to Supervisory Committee and pass all remaining portions of the Qualifying Exam.

Year 4-5: Dissertation defense.

Annual performance reviews with the academic mentor and graduate coordinator occur each Spring/Summer.