SCHOOL OF MEDICINE & DENTISTRY
UNIVERSITY of ROCHESTER

Department of Pharmacology and Physiology Graduate Student Handbook

Paul Kammermeier, Ph.D.
Director
MS Program
(585) 275-5606
paul_kammermeier@urmc.rochester.edu

John Lueck, Ph.D.
Director (Admissions – 1st year)
Cellular and Molecular Pharmacology and Physiology PhD Program
(585) 276-5489
john_lueck@urmc.rochester.edu

David MacLean, Ph.D.
Director (2nd year to Graduation)
Cellular and Molecular Pharmacology and Physiology PhD Program
(585) 276-3032
david_maclean@urmc.rochester.edu

Lori White
Graduate Program Coordinator
(585) 275-1613
lori_white@urmc.rochester.edu

August 2024

TABLE OF CONTENTS
Pharmacology and Physiology
Graduate Student Handbook

Preface

This handbook summarizes the policies of the graduate program in the Department of Pharmacology and Physiology. These policies are designed to be a supplement to the general policies for graduate study at the University of Rochester are contained in the Official Bulletin of Graduate Studies, https://www.rochester.edu/GradBulletin/, and in the Student Handbook of the School of Medicine and Dentistry, http://www.urmc.rochester.edu/education/graduate/trainee-handbook. Since policies continually evolve to respond to changing needs of the graduate program and our students, it is imperative that students and faculty advisors verify important decisions with the Program Director(s).

Program Objective

The objective of the graduate programs in pharmacology and physiology at the University of Rochester is to provide a state-of-the-art learning environment in which students explore the molecular and cellular mechanisms that enable organisms to detect and respond to signaling molecules and pharmacologic agents. We aim to train scientists in molecular and integrative pharmacology and physiology and prepare them for successful careers in independent research and teaching. Each student will acquire the range of technical, analytical, and critical skills required to successfully pursue a research career in academia or in the biotechnology/pharmaceutical industry. The program offers Ph.D. degrees in both pharmacology and physiology and includes courses in basic and advanced biomedical sciences, pharmacology, and physiology; original laboratory research; and the preparation and defense of a doctoral thesis. The Ph.D. degree is awarded upon completion of scholarly work and research described in a publishable dissertation. Our department and program websites are listed below.

http://www.urmc.rochester.edu/pharmacology-physiology/index.cfm
http://www.urmc.rochester.edu/education/graduate/phd/pharmacology-and-physiology/
https://www.urmc.rochester.edu/education/graduate/masters-degrees/pharmacology-physiology.aspx

Program Administration

The graduate program in pharmacology and physiology is administered by the Program Director(s), the Graduate Studies Committee, and the faculty of the Department of Pharmacology and Physiology. The review and acceptance of applicants into the program and the review of students enrolled in the program is the responsibility of the Graduate Studies Committee. The Pharmacology and Physiology faculty will participate in major policy decisions concerning the graduate program.

The Graduate Committee of the Department of Pharmacology and Physiology consists of the Program Director(s) and typically three to five other faculty members who hold either primary or secondary appointments in the Department of Pharmacology and Physiology. This committee is responsible for administering the Ph.D. programs, setting program requirements and policies, and monitoring student progress. The Graduate Committee reviews and approves students' thesis advisory committees. The committee also considers petitions for graduate course transfers, graduate course selection, and exemptions to requirements and policies.

Doctoral Programs in Pharmacology and Physiology

A. **Year 1:** Students are admitted into the CMPP program on a provisional basis for the first year. After successful completion of the first year of study- which includes required coursework, laboratory rotations (including written and oral reports), and selection of a thesis advisor, students formally enter the graduate studies program of the Department of Pharmacology and Physiology. During the first year, students will be advised directly by the CMPP Program Director(s).

a. **Coursework:** Students must complete at least 32 credit hours of coursework. This total includes 26 credit hours of required courses and at least 6 credit hours of electives. Rotations, PHP 405, 467, 502 and IND 501 are taken on the S/E system. All other required courses must be taken on the A/E system; The following courses, or acceptable equivalents as determined by the Graduate Studies Committee, are required of all Ph.D. candidates:

i. Required courses*:

Fall
- IND 431 Foundations in Modern Biology I (5 credit hours)
- PHP 403 Human Cell Physiology (4 credit hours)
- IND 501 Ethics in Research (1 credit hour)
- PHP 502 Seminar‡ (1 credit hour)

Spring
- IND 432 Foundations in Modern Biology II, module 1 (1 credit hour)
- PHP 404 Principles of Pharmacology (4 credit hours)
- PHP 447 Signal Transduction (3 credit hours)
- PHP 405 Effective Scientific Communication (2 credit hours)
- PHP 502 Seminar‡ (1 credit hour)

Summer
- PHP 467 Statistical Rigor and Data Analysis (1 credit hour)

ii. Recommended Elective courses (7 credit hours, total):

Fall
- IND 426 Science Communication for Diverse Audiences (2 credit hours)
- PHP 465 Intro to Cell Mechanics and Mechanobiology (4 credit hours)
- MBI 473 Immunology (4 credit hours)
- BST 463 Introduction to Biostatistics (3 credit hours)
- PTH 507 Cancer Biology (3 credit hours)
- PTH 509 Cell Biology of Human Disease I (4 credit hours)
- CVS 401 Cardiovascular Biology and Disease (3 credit hours)
- BME 431 FDA and Intellectual Property (2 credit hours)

Spring
- PHP 468 Intro to Structure and Analysis of Biomolecules (4 credit hours)

PHP 550 Ion Channels and Disease (2 credit hours)
MBI 403 Drug Discovery (2 credits)
NSC 525 Biology of Neurological Diseases (3 credit hours)
PTH 510 Cell Biology of Human Disease II (4 credit hours)

*All required courses (except PHP 405) are typically taken in the first year; requests to take these courses after the first year require approval of the Graduate Studies Committee.

‡ PHP 502 Seminar is a 1 credit course in both the fall and spring course. A minimum of 4 credits is required and students must register and attend every semester they enroll.

Students are encouraged to attend research seminars of local and visiting scientists hosted by other departments. In addition, students are strongly encouraged to join one of several journal clubs run by faculty within the department.

Selection of appropriate elective courses that complement the student's research area should be done in conjunction with the student's thesis advisor in consultation with their thesis committee. Elective courses can be taken at any time during the student's period of study, though most students prefer to complete all course requirements within the first two years. Students are free to take more electives than required, provided their thesis advisor agrees.

Students may request to take elective courses that are not on the recommended list, however this requires approval of the Graduate Studies Committee. To petition to take a course not on this list, send an email with the course name, number of credits, the course syllabus and a few sentences of justification to the Program Director(s). Requests for approval should be made prior to the semester in which the course is held.

Certain recommended electives may conflict with PHP 502 Seminar. In these cases, students must get Program Director approval. This will require approval from their advisor and a reasonable case that the conflicting elective benefits their scientific training. In addition, during that conflicting seminar students will need to attend and present at least once in the Departmental Journal club. Students will also need to attend non-conflicting seminars and complete their seminar evaluation.

b. **Concentrations:** . CMPP students are eligible to participate in a New York State certified Concentration in Bioinformatics. This entails coursework to be taken using

elective slots in the core curriculum (or in addition to other electives). Coursework requirements for the Bioinformatics concentration can be fulfilled anytime during a student's training, so long as they are complete by the time of graduation. Choosing to participate in a Concentration is a decision that should be made by the student in consultation with their Ph.D. research advisor and/or the Program Director.

The Concentration in Bioinformatics, directed by Juilee Thakar, Ph.D., and Dirk Bohmann, Ph.D., dovetails with expansion in Bioinformatics, Computational Biology, and Data Science across the University of Rochester. Students enrolling in this concentration will take part in existing coursework specifically designed to provide theoretical and practical training in bioinformatics, supplementing the core curriculum. Students in this concentration will take two existing courses, one focused on programming and the other on statistical analysis of biological data. These students will also take part in an interactive seminar featuring discussion of cutting-edge topics in the field. For further information about this Concentration, please contact Drs. Thakar or Bohmann.

Bioinformatics Concentration Requirements:
Programming Requirement (3-4 credits)[1]
Statistics Requirement (3-4 credits)[2]
IND 484 (2 credits) Current Topics in Bioinformatics

[1] The programming requirement can be fulfilled by any of the following courses:
IND 419 (3 Credits) Introduction to Quantitative Biology
BCH 521 (4 credits) Bioinformatics for Life Scientists
BIO 457 (4 credits) Applied Genomics 9

[2] The statistics requirement can be fulfilled by any of the following courses:
BST 434 (4 credits) Genomic Data Analysis
BST 432 (4 credits) High Dimensional Data Analysis
BST 467 (3 credits) Applied Statistics in the Biomedical Sciences
DSC 462 (4 credits) Computational Introduction to Statistics

Choices for the statistics and programming requirements should be made by the student in consultation with their Ph.D. research advisor and/or Dr. Thakar.

c. **Laboratory Rotations**: All first-year students must successfully complete at least three laboratory rotations before formally entering the PhD program in Pharmacology or Physiology. Under most cases, these rotations will have been completed during the student's first year of study. These laboratory rotations provide an opportunity to gain a broader perspective of the sciences of pharmacology and physiology and at the same time, allow the student to become familiar with the diverse investigative activities being pursued within the University of Rochester Medical Center. Typically, faculty who are interested in having students rotate in their laboratory present brief overviews of their research projects at the beginning of the fall semester to highlight

ongoing studies. However, not all faculty interested in rotations students are able to present such overviews. It is the responsibility of the student to contact faculty directly to determine if they are accepting rotation students. Students are advised to do so *early*. Lab rotations require signature approval from both the lab PI and the Program Director(s) prior to the start of the rotation. One rotations with faculty outside of the program is permitted. However, not all faculty at the University of Rochester will be appropriate advisors for the Doctoral Program in Pharmacology and Physiology. It is strongly recommended that the student discuss this selection with the Program Director(s) before approaching the faculty member. The duration of each rotation is 11 weeks, and students are expected to spend at least 10-12 hours per week in the lab.

i. Rotation Assessment: The Program Director(s) will meet with students during new student orientation to discuss faculty expectations of student performance during the rotation period. To obtain a satisfactory grade for a rotation, a student must participate in the activities of the lab (such as journal clubs and lab meetings), complete experimental activities agreed upon, and be able to demonstrate proper documentation, analysis, and presentation of acquired data. Rotations will be assessed through a combination of evaluations and written and oral reports.

1. At the end of each rotation, *both the student and mentor will each complete a written evaluation*. Forms for these evaluations can be found here: http://www.urmc.rochester.edu/education/graduate/home/forms.cfm The mentor is expected to discuss their written evaluation with the student and submit following the instructions on the bottom of the form. In the CMPP program, student evaluations of their rotation mentors are kept confidential. Both student and mentor evaluations are assigned due dates by the Graduate Education office (GEPA). Failure to submit these evaluations on time may result in a grade of 'incomplete'. Though the faculty evaluation is submitted by the rotation advisor, it is the responsibility of the student to ensure that the program and graduate education office receive the evaluation on time.

2. In addition, *the student must complete a written report for each of their rotation experiences*. These reports should be at least two pages, single spaced, with $\leq$ 1 inch margins. The reports should describe the research problem investigated during the rotation, and include the following subsections: background, significance/rationale, approach, future

directions, and references. Figures should be included as appropriate; however, figures and references are not included in page requirement. The two-page reports should be completed with the input of the rotation advisor, and *each report submitted to the CMPP Program Director(s) and Program Coordinator within 1 week of the end of the rotation*. The overall evaluation of these writing exercises will be considered one part of each student's end of first year evaluation.

d. **Seminar:** First-year students will also *present a 30-minute talk on a selected rotation* at the end of the spring semester as part of the student colloquium.

e. **Faculty Review of Student Performance**: At the conclusion of the academic year, the Graduate Studies Committee meets to discuss the academic performance of first-year students. Coursework grades, laboratory rotation evaluations, and written reports are used to assess student performance. Minimum passing grades for courses and research carrying credit are C or S. Students who receive a grade of C in any two courses will be terminated from the program.

   Students are expected to have an overall GPA of at least 3.0, and rotation evaluations of "meets expectations" or "exceeds expectations" (scale = Exceeds Expectations/ Meets Expectations/Needs Improvement/ Unacceptable) for lab rotation performance. Those students with a GPA less than 3.0, those who receive an "unacceptable" on their rotation evaluation, and/or those who have received a grade of 'C' in any course will be required to work with a faculty mentor or mentoring committee to outline strategic goals for improving performance. Follow-up with the student's progress will occur monthly, and taper to quarterly as performance improves. In addition, they may be put on academic probation and may be dismissed from the program if none of the mentors with whom they rotated is willing to have the student join their laboratory. Alternatively, the student may be permitted to undergo a first-year examination (discussed in detail below). Students must receive a grade of "Pass" on this exam to remain in the program.

f. **First-year Examination**: If a student's performance does not meet expectations (see above), the Program Director's may elect to administer a First Year Exam. The purpose of the exam is to evaluate a student's critical thinking skills in both written and oral formats, in order to identify those students who appear capable of completing all requirements for the doctoral program.

   The subject of the first-year exam is a recent article from the literature. The Program Director will select three faculty members from the Department of

Pharmacology and Physiology to serve on the exam committee. These faculty will then submit recent articles that align with the background and interests of the student to the Program Director(s), who will pass the list on to the student. The student will then have 3 days to select one paper on which to execute the exam. After selecting a paper, the student will be given 14 days to prepare a report. Reports are to be no more than 15 double spaced pages, Arial or Helvetica typeface and 11 pt font size, with 1 inch margins. Figures and legends should be embedded within the text. The report should begin with an executive summary. The report must include a critical evaluation of the paper. The critical analysis should address: 1) the significance of the study in the context of human health, 2) the findings of previous studies that address similar questions, 3) the quality of the work, data, and/or model(s), and 4) the strength of the conclusions. Note that a student does not need find things 'wrong' with the paper. Students will have at least three days after turning in the report before the oral exam. The student should prepare an approximately 20 minute oral presentation on the paper and their report. The paper is used as a starting point for questioning, but the student's understanding of fundamental pharmacology/physiology principles and biology will be tested during the oral portion of the exam. The student will meet with the Program Director(s) prior to the oral exam to explain the expectations for passing the exam to the student. Students are not allowed to retake this exam. Failure results in termination from the program. Students who pass the examination receive feedback on their performance immediately after the exam.

B. **Year 2**: Students must designate a thesis advisor and Ph.D. track (Pharmacology or Physiology) within 12 months of beginning their studies. Students then formally enter the graduate studies program of the Department of Pharmacology. The selection of a thesis advisor requires approval by the Program Director(s) and the Department Chair. A faculty member may not be able to accept a student for some of the following reasons: (1) insufficient laboratory space or facilities; (2) lack of funds to support research; (3) commitments that prevent the faculty member from devoting sufficient time to the student's training and education; and (4) plans for a sabbatical leave.

   a. **Selection of Thesis Advisor:** Full-time, tenure-track faculty members at the University holding primary or secondary appointments in Pharmacology and Physiology, as well as full-time, tenure-track faculty members of the Aab Cardiovascular Research Institute, may serve as a Ph.D. thesis advisor to graduate students in the Pharmacology and Physiology programs. *Students should meet with their thesis advisor to discuss and sign the Roles and Responsibilities of Advisors and Students Form within 2 weeks of joining the lab.*

b. **Selection of a Thesis Advisory Committee**: The thesis advisory committee performs several functions during the student's time at the University. It serves as the basis for the qualifying examination committee, reviews the student's progress on an annual basis, provides advice during the development and progression of the research project, and serves (along with an appointed Chair) as the examination committee for the thesis defense. The Thesis Advisory Committee should be consulted during conception of the thesis problem, execution of the thesis research, and the writing of the thesis. A faculty member does not need to be performing similar scientific research to be a valuable committee member. Often, those with peripheral knowledge of the student's research area can see important avenues of study because of their different perspectives.

   At the latest, students are expected to assemble their thesis advisory committee during the Spring semester of their second academic year. Students, after consultation with their thesis advisor, should submit the list of prospective committee members to the Program Director(s) in Pharmacology and Physiology for approval. Please note that *students must meet with their thesis advisory committee during their second academic year.*

   The Department of Pharmacology and Physiology requires that the thesis advisory committee be composed of at least four members, one of which will be your thesis advisor. In addition, at least two committee members (which can include your advisor) should have primary appointments in the department of Pharmacology and Physiology, and at least one member should hold a primary appointment in another department.

c. **Seminar**: Second-year students will present two seminars during the year – one in the fall and one in the spring. In the fall semester, second-year students will present a literature review of their choice. During the spring semester, students will present a research/literature seminar designed to incorporate some of their preliminary laboratory research in conjunction with relevant recent literature.

d. **Teaching (TA) Requirement**: All PhD graduate students in the School of Medicine are required to act as a teaching assistant or peer tutor in one or more courses prior to completion of their degree. Typically, this requirement is fulfilled during the second year, but can be fulfilled at any time. Our program requires students complete *a minimum of 8 student contact hours* to fulfill this requirement.

To fulfill the requirement for 8 student contact hours, students may either TA more than one course (or more than one semester) or may tutor a junior student for one semester. If students elect to TA a course, they are strongly recommended to contact the course director for the course that they wish to TA *far* in advance of the semester the course will be offered. If students elect to act as a peer tutor, they should contact the Program Coordinator prior to the start of the relevant semester. To act as a peer tutor, a student must have received an A- or better in that particular course. Upon completion of a teaching assistantship or peer tutor semester, the student must submit a TA Requirement Certification form, signed by the course director (or Program Director(s) in the case of peer tutoring) , to the Graduate Program Coordinator.

A list of courses in which there are opportunities to TA can be obtained from the Program Coordinator. Students who wish to TA courses not on this list will require prior approval from the Graduate Committee.

e. **Qualifying Examination Preparation**: The Program Director(s) meets with second-year students at the beginning of the Spring semester to provide students with the rules and expectations of the qualifying examination. A written summary of rules and expectations will be provided at the meeting. Students must meet with their thesis advisory committee during their second academic year. During this meeting, the student and committee members should discuss the student's emerging research proposal. The Qualifying Examination may be scheduled as early as the spring of the second year of study, but must be completed no later than October 1st of the third academic year.

C. **Year 3**: The third year of study is marked by the completion of the Qualifying Examination in the fall. Students must also maintain a 3.0 GPA throughout their years of study, attend departmental seminars, and continue full-time research. Ph.D. students who successfully pass their qualifying examination and have completed their coursework will be awarded a Master's Degree. To meet these MS degree requirements, students must have completed at least 30 credit hours of course work. This includes the 24 credit hours from the required courses on pg. 4. It will typically also include another 1-2 credits from PHP 502 Seminar. The remaining 4-5 credits typically come from electives. Discuss your particular program of study with the Program Coordinator and/or Director(s) to ensure a smooth process.

a. **The Qualifying Examination**: Exams may be scheduled as early as the spring of the second year of study, but must be completed no later than October 1st of the third academic year. An examination grade of "Fail" is recorded for those students who have not taken the exam by the deadline. Whether the student is permitted to take

the exam at a later date is left to the discretion of the Graduate Studies Committee with advisement from the student's thesis committee. A second failing grade results in termination from the program.

The Qualifying Examination is administered by members of the student's Thesis Advisory Committee, plus two ad hoc faculty members appointed by the Program Director(s). *Students must schedule the exam at least one month prior to the actual date of the exam and inform both the Program Director(s) and the Program Coordinator of the date, time, and location of the exam.* Once the exam is scheduled, ad hoc members will be appointed. The appointed faculty members serve for the Qualifying Examination only, and are not permanent members of the student's Thesis Advisory Committee. *The full exam committee roster, as well as a title page and abstract of the proposal, must be submitted to GEPA at least 15 work days (~3 weeks) prior to the examination.*

The student will submit the required paperwork and research proposal (ten-page maximum) in the NIH grant-proposal format to all members of the Qualifying Examination committee at least two weeks prior to the examination. Failure to distribute the written document by the deadline, without prior approval from the Graduate Studies Committee, will result in cancellation of both the examination and seminar, and the exam will be recorded as 'Fail'. The student will be given an opportunity to retake the exam once. Details of the format of the written portion of the exam are listed below. Failure to follow the formatting guidelines will result in the proposal being returned to the student and may result in a recorded grade of "Fail" for the exam.

The exam consists of the written proposal, and the oral exam, which is comprised of a public seminar and closed exam session. The closed portion of the exam typically lasts between two and three hours. *The thesis advisor is not present during the closed examination.*

i. Written Exam Specifications: Students are expected to propose a logical series of experiments designed to test a stated hypothesis and to defend their proposed ideas and approaches. The examination is not intended to be an abridged thesis defense, and therefore, limited preliminary data is required.

    1. Students must use the current NIH-style format for their proposal. References, title page, and abstract are not included in the 10-page

limit. All print (including figure axes and legends) must be clear and legible.

2. The typical format is a 1 page Specific Aims and the rest devoted to Research Strategy. The Research Strategy section is typically further divided into Significance, Innovation and Approach. Students can opt for additional Preliminary Studies and Methods sections or weave these elements into the Approach section. The NIH website and your thesis advisor can provide further guidance on how best to structure your proposal.
3. Font: Use an Arial or Helvetica typeface and a font size of 11 points or larger. A symbol font may be used to insert Greek letters or special characters; the font size requirement still applies. Type density, including characters and spaces must be no more than 15 characters per inch. Type may be no more than 6 lines per inch.
4. Page Size and Margins: Use standard size (8 ½" x 11") sheets of paper. Use one-half inch margins (top, bottom, left, and right) for all pages. Use single column format. The proposal must be single-sided and single-spaced.
5. Number pages consecutively. Do not use suffixes (e.g. 5a, 5b, etc.). Do not include unnumbered pages.

ii. Oral Examination: The aim of the research proposal/qualifying examination is to assess the student's general knowledge of the broad aspects of pharmacology and physiology and to test the student's ability to apply this knowledge to the solution of research problems. *Students must deliver a 60 minute (50-minute presentation, 10 minutes for questions) open proposal seminar prior to the closed examination.* If the presentation is significantly shorter than the allotted time, this may be taken into account by the committee when determining whether the student has completed the requirements of the exam. During this seminar, students should clearly state the hypothesis to be tested by the specific aims of the proposed project, provide justification for the research through consideration of published literature and/or preliminary data, and clearly outline the proposed line of experiments and anticipated results. Students should make every attempt to schedule their open seminar during the Student Colloquium Series (PHP 502). However, in some instances scheduling constraints may require the open seminar and exam to be scheduled at an alternate time.

iii. Evaluation: At the beginning of the closed exam session, the student, thesis advisor and exam committee will all be present. The student will leave the exam room and the thesis advisor will be offered a chance to summarize the student's progress and performance thus far. The thesis advisor will then leave the examination room for the remainder of the exam. The committee will discuss the administration of the exam. The student will be invited back in and the evaluation will commence. During the closed examination, students will be evaluated by their ability to satisfactorily answer questions raised by committee members that focus primarily on the following issues:

1. Does the proposed research project address a valid and important scientific question?
2. Has a central hypothesis been clearly stated? Is the hypothesis supported by published literature and/or preliminary data?
3. Does the student have a broad and firmly based knowledge of the literature related to the area of research?
4. Do the proposed methods appropriately address the hypothesis? Are the questions likely to be answered by the proposed approach?
5. Are the proposed methods feasible? Does the student understand the limitations of the proposed techniques and possible technical obstacles? Does the student have alternate approaches in mind?
6. Can the student clearly describe the predicted results and competently interpret the multiple possible outcomes of the experiments?
7. Is it likely that the project could be completed within the requisite time frame?
8. Is the scientific significance/importance of the question clearly stated? Is the relevance of this information to human health/disease clearly expressed?

iv. Re-Taking the Exam: If a student fails the examination, they may be given an opportunity to retake the exam once. According to the U of R Regulations and University Policies Concerning Graduate Studies, "A second qualifying examination after failure, if permitted, may be taken after a period of five calendar months." Given scheduling constraints, students should allow plenty of time to arrange with their Qualifying Examination Committee the date, time, and location of the Qualifying Examination. In addition, the student must submit two forms (available from the Graduate Program Coordinator) along with an Abstract and Title Page to the Senior Associate Dean for Graduate studies requesting that the

examination be scheduled. This form must be sent no later than 15 work days before the scheduled examination.

b. **Seminar**: During the third year of graduate work, a seminar is delivered in conjunction with the Qualifying Examination and is the only seminar required for the year.

D. **The Remaining Years**: The remaining years of graduate study are spent on full-time research developing the research project that will be described in the Ph.D. thesis. The research advisor and thesis advisory committee play key roles during these years.

a. **Annual Assessment**: Following successful completion of the Qualifying Examination, *students must meet with their thesis advisory committee at least once yearly*. During these meetings, the committee will discuss the student's progress and clarify research problems. *A written report of the student's progress must be approved by the committee and then submitted to the Program Director(s) and Senior Associate Dean for Graduate Studies, by June 1 of each academic year.* If the annual progress report is not submitted by this deadline, stipend funding may be terminated. The form for this report can be found on the Graduate forms website: http://www.urmc.rochester.edu/education/graduate/home/forms.cfm (Evaluation-Annual).

The annual committee meeting is typically done in conjunction with the student's required seminar. Prior to the committee meeting, students will work with their research advisor(s) to fill out the annual progress report and then distribute the report to committee members. Students who receive an overall performance evaluation of 'good', 'fair', or 'poor' (scale = poor/fair/good/very good/excellent/outstanding) will be asked to schedule bi-annual committee meetings to provide more feedback to the student. The Program Director(s) will meet with students who receive a grade of 'fair' or 'poor' and their advisor to discuss potential ways to improve performance. The completed annual progress report (signed by all committee members) should be submitted after this meeting.

b. **Additional Requirements**: Students are encouraged to work closely with their thesis advisor to submit a predoctoral grant application in year 3 or 4. *Students are required to submit at least one first author peer-reviewed manuscript for publication before their doctoral defense.*

E. **Dissertation Preparation and Defense**: The dissertation (thesis) is written after the student's Thesis Advisory Committee and advisor have approved the completion of the thesis research. The expectation of the CMPP program is that each dissertation shall be a report on independent research, consist of a body of work of suitable scope and depth, and be formulated in a manner worthy of publication. All collaborations and other contributors to the student's thesis should be clearly indicated and defined in the written document and public presentation.

When the student is ready to write the thesis, the appropriate form should be signed and delivered to the Graduate Program Coordinator. The student should go to the following website to print out a copy of the booklet "Preparing your Thesis, A Manual for Graduate Students"- http://www.rochester.edu/theses. This booklet outlines the University's requirements for format, documentation, and the physical form of the thesis. *The student must prepare the thesis to meet the requirements set forth in this booklet.* Students should also consult the "Regulations and University Policies Concerning Graduate Studies" for additional instructions. The student should reach an agreement about the format and content of the thesis with their advisor prior to writing the thesis. The advisor has the ultimate responsibility and authority to determine the content of the student's thesis.

a. **Overview of Thesis Defense Process and Registration of Defense**:

<u>Important Due Dates</u>

i. At least **6 months prior** to proposed date of defense – meet with your advisory committee to request approval to begin writing your thesis.
ii. At least **4 months prior** to proposed date of defense – notify your Graduate Program Coordinator of the three faculty members to nominate to serve as Chair for your defense.
iii. At least **2 months prior** to the date of defense – arrange date, time, and location of defense with committee and poll your defense chair and advisory committee to determine their preference for thesis format (hard copy/pdf). Notify the Registrar and Graduate Program Coordinator of defense date. Your Graduate Program Coordinator will start your defense record in an online SharePoint, PhD Completion Site. You will work with your Graduate Program Coordinator to provide other documents to complete the online defense record. Check with your Graduate Program Coordinator to determine when these documents must be submitted.
iv. At least **25 full work days prior** to the date of defense – provide thesis to your Graduate Program Coordinator to upload to the online system and make hard copies as needed.

v. At least **15 full work days prior** to the date of defense – Graduate Program Coordinator will confirm thesis and all paperwork is uploaded to online system and approve. This generates an email to your advisor, advisory committee and Program Director(s) to request online approval of the thesis submitted for defense.

vi. At least **10 full work days prior** to the date of defense – advisor, advisory committee and Program Director(s) have approved your thesis for defense. The thesis and defense record is reviewed and approved by SMD Senior Associate Dean for Graduate Studies.

vii. At least **5 full work days prior** to the date of defense – registration of thesis for defense. The University Dean for Graduate Studies reviews and approves the thesis and defense record. This generates an email to your defense chair, advisor and advisory committee announcing the date, time, and location of defense. The defense chair receives instructions for the defense, forms and for reporting the exam outcome.

b. **Nomination of Defense Chair**: The Chair is appointed for each Ph.D. oral defense exam to monitor and promote fairness and rigor in the conduct of the defense. The candidate and advisor will nominate three individuals to serve as Chair using the Request for PhD Chairperson form prepared by the Graduate Program Coordinator and submitted to the Senior Associate Dean for Graduate Studies. Nominees should should be full-time faculty members who are not part of the advisor or student's working group, graduate program, or department, and do not have any other significant relationship with the advisor, student or committee members. Faculty outside of the University of Rochester are allowed, but will be held to the same standard. The Chair's status as a nonmember of the advisor's and student's working group, program, or department enables distance from previously established judgments on the candidate's work. The outsider status also limits the Chair's and member's' ability to use department administrative influence in the defense process. You will be notified of the Chair selection and the selected chair should be included in the planning for specific defense dates.

c. **Registration for Defense:** At least **15 full work days** prior to the date of defense, the final thesis and required forms must be uploaded to the online system. Work with the Registrar and Graduate Program Coordinator to ensure completion of forms.

d. **Final Oral Examination**: The Final Oral Examination will be taken after completion of all other requirements for the degree, but not earlier than six months after passing the qualifying examination. The examination consists of two parts: the first part is a public seminar that describes the work presented in the dissertation. The second

part of the examination takes place immediately after the seminar and after all questions have been satisfactorily answered. The student will then meet privately with the Dissertation Advisory Committee to defend the dissertation.

e. **After your Defense**: After a successful defense, the student must make the corrections requested by the advisory committee as well as corrections from the University Dean for Graduate Studies. The University Graduate Studies (UGS) office may also notate required corrections to the format of your thesis. This annotated copy, along with the original thesis, will be stored in the PhD Completion Site for you to reference after your defense. Log into https://phdprocess.ur.rochester.edu to access this document; in most cases your Graduate Program Coordinator will download and provide it for you. If required, a final signed form from the student's advisor indicating that all changes have been made will be submitted to the UGS.

    i. Once all corrections/revisions are completed, all PhD students must attach a pdf of their final abstract (350 words or less) and attach a pdf of their final dissertation to the UR ProQuest site (http://www.etdadmin.com/rochester. You will receive instructions for the ProQuest publishing process from the University Graduate Studies (UGS) office. In addition, you will receive instructions from UGS for other forms to complete that are required for the completion of the degree.
    ii. After your final thesis is submitted to ProQuest, provide a PDF version to your graduate program coordinator who will have hard cover bound copies made - one for the student, one for your advisor, and one for the department library. This is a courtesy paid for by the Department of Pharmacology and Physiology. You can have additional copies bound, at your expense. Do not request bound copies through ProQuest.

    Note: Please be sure that the Graduate Program Coordinator receives a copy of any correspondence between your advisor and the Senior Associate Dean for Graduate Studies Office that concerns your qualifying examinations and thesis registration. It is important that accurate records be kept within the department on the status of each student.

F. General Policies

a. **Advisor's Responsibilities**: Advisors are expected to meet regularly with trainees to assess their academic and research progress. The advisor should set reasonable expectations for performance in the laboratory, should assist the student in gaining access to needed equipment and facilities, and should discuss potential or actual problems with the Departmental Graduate Studies Committee. The Cellular and Molecular Pharmacology and Physiology Program requires advisors to acknowledge their responsibilities and attest that they have discussed laboratory policies with their students by signing the 'Roles and Responsibilities of Advisors and Students' form.

b. **Student's Responsibilities**: Students are expected to comply with departmental and graduate school regulations concerning deadlines and the convening of dissertation advisory committee meetings, to meet the academic performance expectations of the University, to attend all departmental seminars, and to pursue their thesis research vigorously. All research laboratories require that students maintain up-to-date records of their experimental work. The research notebooks are the property of the student's advisor. The Cellular and Molecular Pharmacology and Physiology Program requires students to acknowledge their responsibilities and attest that they have discussed laboratory policies with their advisor by signing the 'Roles and Responsibilities of Advisors and Students' form.

c. **Resolution of Conflict:** The program recognizes that conflicts between students and faculty sometimes arise. Close attention to the guidance laid out in the "Roles and Responsibilities of Advisors and Students" document plus frequent and open communication between the advisor and student are good strategies to avoid such conflicts. Students and graduate faculty are expected to conform to all University of Rochester policies; the University has existing policies that apply to matters of academic misconduct (by student or faculty), discrimination, harassment, and sexual misconduct.

   In the event that a conflict arises that is not addressed by an existing University policy, the student and faculty should attempt to work out the issue. Each party should document when meeting(s) occur and briefly summarize how attempts to create a mutually satisfactory resolution were approached. If the parties cannot reach a mutually satisfactory resolution, the student can request assistance from their thesis committee, the Program Director(s), another faculty member, the department chair, or SMD ombudsperson, who will attempt to facilitate a resolution. If a resolution is not achieved, in some cases the matter may be brought to the Senior Associate Dean for Graduate Education and Postdoctoral Affairs. See

https://www.urmc.rochester.edu/education/graduate/trainee-handbook/policies-benefits/grievance-procedure.aspx for more information.

d. **Regulations**: In addition, the document, "Regulations and University Policies Concerning Graduate Studies", contains more detailed information than is provided in this handbook, and students are expected to be thoroughly familiar with these regulations. This Bulletin is available from the Graduate Program Coordinator and is also available on the Graduate Education website.

e. **Right of Petition**: Students have the right to petition the Departmental Graduate Studies Committee to make changes in their program or to deviate from the guidelines contained in this handbook.

   Common reasons for petition include: approval of an alternative elective course, petition for transfer of course credits from a prior institution (with or without waiver of program requirements), course approval for TA requirement, and changing the membership of the student's thesis committee. Students wishing to make a change in their selection of thesis advisor should contact the Program Director to discuss that process.

f. **Vacations/Holidays**: Graduate students are expected to engage in full-time study and research. NIH guidelines and official University of Rochester policy provides graduate students with 2 weeks (10 business days) of vacation per year, as well as official University holidays and a reasonable amount of sick days. *Students are not permitted to take more than two weeks of vacation at any one time without approval of their advisor and notification of the Program Coordinator.* In all cases, the student's advisor or the Program Director(s) (for students whose advisor is unavailable) should be consulted about planned vacations with respect to impacts to student visas (if applicable) and research progress.

g. **Supplies and Photocopying**: In general, students will use research supplies available in the advisor's laboratory. All purchases must be approved by the research advisor. Photocopying is charged to the laboratory's copy card. If the student does not have access to a card or if the student is required to copy course material, a copy card is available in the Pharmacology and Physiology Department Office.

h. **Use of Generative AI**: The utilization of generative AI tools in the process of doctoral dissertation and master's thesis research and writing, master's capstone projects, or other culminating experiences is allowed by must always occur with full transparency. This includes providing a description of any employment of generative

AI in the research or writing process, along with appropriate citation. Students are required to include a disclaimer in any written assignment or their dissertation, such as: 'Generative AI was used for XYZ [listing tasks such as writing text, generating code for graphs, etc.]. *If generative AI is utilized, it also becomes the student's responsibility to ensure that any sources potentially utilized by the AI, without citation, are properly cited within the student's work.* Students intending to utilize generative AI tools in submitted written work such as their dissertation, thesis or other must consistently obtain and formally document unambiguous approval for the intended uses in advance from their supervisor(s) and supervisory committee. Unauthorized or unacknowledged use of generative AI tools for scholarly graduate work at the University of Rochester may be considered an offence under the Academic Honesty Policy.

Program for Master's Degree in Pharmacology or Physiology

The Cellular and Molecular Pharmacology and Physiology program awards Master's degrees in Pharmacology or Physiology. Students entering the Master's degree program must select between two tracks, either Plan A (research focus) or Plan B (academic/literature focus). The final output of the Plan A Master's degree is a thesis based on the student's own research. The final output of the Plan B Master's degree is the completion of the Master's Essay (see below for more detail). Both Master's degrees can be completed through full-time or part-time study. Selection of Plan A or Plan B should be made no later than the end of the second semester of study.

A. **Coursework (Plan A <u>and</u> Plan B)**:

A minimum of 30 hours of coursework is required.

Required courses (Plan A and Plan B):

Fall
- IND 431 Foundations in Modern Biology I (5 credit hours)
- PHP 403 Human Cell Physiology (4 credit hours)
- IND 501 Ethics in Research (1 credit hour)
- PHP 502 Seminar‡ (1 credit hour)

Spring
- IND 432 Foundations in Modern Biology II, module 1 (1 credit hour)
- PHP 404 Principles of Pharmacology (4 credit hours)
- PHP 447 Signal Transduction (3 credit hours)
- PHP 405 Effective Scientific Communication (2 credit hours)
- PHP 502 Seminar‡ (1 credit hour)

Plan A students must also enroll in PHP 495 Master's Research for at least 1 credit for all but their final semester.

Plane B students must enroll in PHP 494 Master's Essay for at least one credit for all but their final semester.

Elective credits: In addition, students must complete 6 additional credit hours of approved elective course credit.

B. **Plan A- Master's Degree:**

To complete a Plan A Master's degree, students must:

1. Maintain a good academic standing. Within the MS program, this is defined as no more than one grade below B-. A second grade below B- will generally result in dismissal from the program unless there are extenuating circumstances. A possible exception is if both grades below B- are obtained in the first semester.

2. Complete at least 1 laboratory rotation. MS Lab rotations follow the same guidelines as PhD. They must be arranged with the lab PI and approved by the Program Director in advance. The start date and duration are the same as PhD students. Rotation reports and evaluations must also be completed. See pg.6-7 of the PhD program for specific information. Master's students may complete a maximum of 3 lab rotations prior to choosing a lab in which to perform their thesis project. The thesis advisor selection must be in place and approved prior to the start of the student's second year of study.

3. Form a thesis committee. The thesis committee should be made up of no less than four faculty members, including the thesis advisor. The thesis committee is tasked with monitoring the student's progress and evaluating the thesis. Given the time frame of a MS degree, the student must meet with their committee no less than every six months and complete an evaluation form.

4. Present at least twice in PHP 502. Plan A students must present a Literature Review in either the spring of their first year or fall of their second year. This review follows a similar outline as the PhD literature review with the option to include data from their own research. The second presentation is their MS defense presentation.

5. Prepare a thesis based in part on original material that displays thorough acquaintance with a limited subject. This thesis will be similar in format to a Ph.D. dissertation, but more limited in scope. Instructions on how to format the Master's thesis will be provided by the Program Director.

6. Successfully complete a final oral examination that focuses on the thesis defense, but may include examination of general competency in pharmacology or physiology. Students preparing for this examination should review the description of the qualifying examination for Ph.D. candidates, as their exam will be similar in format but narrower in scope. The student is responsible for scheduling the oral exam at least 30

days in advance of the exam date. In addition, the student must provide the committee members with their completed Master's Thesis at least two weeks prior to the exam. The exam will consist of an approximately 30-minute open door presentation by the student (see point 3 above), followed by closed-door questioning by the committee. The duration of the exam is expected to last 1 to 2 hours.

7. Meet or exceed the expectations of the MS program. The Plan A MS is a combination of course work and original lab research. For the course work, students are expected to obtain B- or better in all but one A/E graded course (ie. one C is permissible). For the lab research component, students are expected to obtain satisfactory rotation and annual evaluations. After the first unsatisfactory evaluation or grade below B-, the student will meet with the Program Director(s) to discuss the situation and prepare a plan for improvement. After a second unsatisfactory evaluation or grade below B-, the student will again meet with the Program Director(s) and may face dismissal from the MS program.

C. **Example Plan A Timeline (full-time):**

Year 1	
Fall Semester	**Spring Semester**
IND 431 Foundations in Modern Biology I	IND 432 Foundations in Modern Biology II
PHP 403 Human Cell Physiology	PHP 447 Signal Transduction
IND 501 Ethics in Research	PHP 404 Principles of Pharmacology
PHP 502 Seminar	PHP 502 Seminar
PHP 495 Master's Research*	PHP 495 Master's Research*
	Identify thesis advisor
	Form thesis committee

Year Two	
Fall Semester	**Spring (Final) Semester**
Elective Course(s) (2-4 credits)	Elective Course(s) (2-4 credits)
PHP 502 Seminar	PHP 405 Effective Scientific Communication
PHP 495 Master's Research*	PHP 502 Seminar
Meet with committee	

*Students may require additional time (semesters) to complete their thesis project. Please note the total credits applied to PHP 495 Master's Research cannot exceed 12 credits for the Plan A Masters.

D. **Plan B Master's Degree**:

To complete a Plan B Master's degree, students must:

1. Maintain a good academic standing. Within the MS program, this is defined as no more than one grade below B-. A second grade below B- will generally result in dismissal from the program unless there are extenuating circumstances. A possible exception is if both grades below B- are obtained in the first semester.

2. Select an advisor for their Master's Essay. This advisor should be a full-time faculty member in the CMPP Master's program and must be approved by the Program Director. The role of the Essay advisor is to provide guidance for the selection of Essay topic, grounding in general knowledge of the field, and to provide feedback during the writing of the Essay. Students are expected to meet with their Essay advisor on a regular (at least monthly) basis to review progress.

3. Present at least twice in PHP 502. Plan B students must present a Literature Review in either the spring of their first year or fall of their second year. This review follows a similar outline as the PhD literature review. The second presentation is their MS defense presentation.

4. Complete a Master's Essay that presents a critical review of a topic of current pharmacologic or physiologic relevance. Minimum length of 25 pages, excluding references. Format: single-spaced, Arial or Helvetica 12 pt font, $\leq$ 1 inch margin, figures included as appropriate. The Master's Essay should be similar in scope and organization to a review article published in any peer-reviewed journal, including in-depth analysis and critical evaluation of the current literature in the field.

5. Successfully complete a comprehensive oral examination that focuses on the Master's Essay, but may include examination of general competency in pharmacology and physiology. The Program Director will appoint an examination committee who will oversee the exam. This committee will consist of 2-3 department faculty plus the student's advisor. The student is responsible for scheduling the oral exam at least 30 days in advance of the exam date. In addition, the student must provide the committee members with their completed Master's Essay at least two weeks prior to the exam. The exam will consist of an approximately 30-minute open door presentation by the student (see point 2 above), followed by closed-door questioning by the committee. The duration of the exam is expected to last 1 to 2 hours.

6. Meet or exceed the expectations of the MS program. The Plan B MS is a combination of course work and literature research. For the course work, students are expected to

obtain B- or better in all but one A/E graded course (ie. one C is permissible). For the literature component, students are expected to meet regularly with their Essay Advisor and demonstrate reasonable progress in their Essay research. Missing meetings or not making reasonable progress will result in an unsatisfactory evaluation. After the first unsatisfactory evaluation or grade below B-, the student will meet with the Program Director(s) to discuss the situation and prepare a plan for improvement. After a second unsatisfactory evaluation or grade below B-, the student will again meet with the Program Director(s) and may face dismissal from the MS program.

E. **Example Plan B Timeline (full-time):**

Year 1	
Fall Semester	**Spring Semester**
IND 431 Foundations in Modern Biology I	IND 432 Foundations in Modern Biology II
PHP 403 Human Cell Physiology	PHP 447 Signal Transduction
IND 501 Ethics in Research	PHP 404 Principles of Pharmacology
PHP 502 Seminar	PHP 502 Seminar
PHP 494 Master's Essay*	Elective Course (3-4 credits)
	PHP 494 Master's Essay*
	Identify essay advisor

Year Two	
Fall Semester	**Spring (Final) Semester**
Elective Course (2-4 credits)	PHP 405 Effective Scientific Communication
PHP 502 Seminar	PHP 502 Seminar
PHP 494 Master's Essay*	
Meet regularly with advisor	

*Students may require additional time (semesters) to complete their thesis project. Please note the total credits applied to PHP 495 Master's Research cannot exceed 6 credits for the Plan B Masters.

M.D./Ph.D. Combined Degree Program

During their second year of study, M.D./Ph.D. students should discuss entry into the Ph.D. program with the Program Director(s) of the Cellular and Molecular Pharmacology and Physiology program. The Ph.D. portion of their combined degree program will begin after successful completion of the first two years of the Double-Helix Curriculum. M.D./Ph.D. students should expect to successfully complete 2-3 laboratory research rotations, at least one with a primary faculty member in the Department of Pharmacology and Physiology, during the first two years of the Double-Helix Curriculum.

A. **Course Requirements**: The Ph.D. portion of the M.D./Ph.D. program will build on previous background acquired in the Medical School curriculum. Because of this, certain course requirements of the traditional Ph.D. track outlined above will be waived and advanced courses may be substituted to provide depth in an area of specialization. M.D. / Ph.D. students are granted 30 credits toward the 96 credit requirement for the Ph.D. on the basis of their basic science courses in the medical curriculum.

    a. Each M.D./Ph.D. student must complete
        i. IND 431 Foundations in Modern Biology I (5 CR)
        ii. PHP 502 Seminar (at least 4 semesters) (1 CR/semester)
        iii. IND 501 Ethics and Professional Integrity (1 CR)
        iv. PHP 467 Statistical Rigor and Data Analysis (1 CR)

    b. Finally, M.D./Ph.D. students must complete at least an additional 4 CR of upper-level credits selected from the recommended courses listed in Section A of the Ph.D. program above. It is strongly recommended to take PHP 447 Signal Transduction for some of these credits.

B. **Qualifying Examination**: M.D. / Ph.D. students must successfully complete the Departmental Qualifying Examination by October 1 of their 4th year of study in the M.D./Ph.D. program (as described in Section C above).

C. **Annual Evaluations**: M.D. / Ph.D. students must meet with their thesis advisory committee at least once per academic year. During these meetings, the committee will discuss the student's progress, clarify research problems, and outline priorities of future research directions. Thesis preparation and defense requirements are the same as those listed in Section E above.

D. **Teaching Requirement**: M.D./Ph.D. students are currently exempt from the TA requirement, as per MSTP policy.

Appendix I. Timeline of Study and Important Due Dates (Doctoral Program)

Timeline	Event	Dates	Important Due Dates
Year 1	1st lab rotation	October 1 to December 15 (optional July 1-August 31, evaluation due September 15)	**Program director must approve rotation lab <u>prior</u> to start of rotation**
			December 20: Student and Faculty§ Evaluations due
			December 22: Written rotation report due
	2nd lab rotation	January 1 to March 15	**Program director must approve rotation lab <u>prior</u> to start of rotation**
			April 1 : Student and Faculty§ Evaluations due
			March 22: Written rotation report due
	3rd lab rotation	March 16 to May 31	**Program director must approve rotation lab <u>prior</u> to start of rotation**
			June 15: Student and Faculty§ Evaluations due
			June 7: Written rotation report due
	Fall Registration	See Academic Calendar* (August)	
	Spring Registration	See Academic Calendar* (November)	Elective courses not on the approved list require approval by the Graduate Studies Committee prior to registration
	Rotation Presentation	15-20 min presentation on one rotation topic.	See Seminar course director for scheduling (typically in May/June)
	Select Advisor	Student must join a lab no later than 12 months after starting the program	**June 1**: Approval form signed by program director
			June 15: Signed Roles and Responsibilities document submitted§

Year 2	Select Thesis Committee	Recommended ASAP, no later than March	Thesis Committee approval must be granted **at least 1 week prior** to first committee meeting
	Fall Seminar	Literature Review	See Seminar course director for scheduling
	Spring Seminar	Research Seminar	See Seminar course director for scheduling
	Fall Registration	See Academic Calendar* (July)	Elective courses not on the approved list require approval by the Graduate Studies Committee prior to registration
	Spring Registration	See Academic Calendar (November)	Elective courses not on the approved list require approval by the Graduate Studies Committee prior to registration
	TA Requirement	Course director must sign TA Requirement Certification form	Signed TA Certification form must be submitted to program coordinator at conclusion of the course
	Committee meeting	Committee must meet once during academic year 2 and annual evaluation form† completed	**July 1**: Meeting complete and Annual Evaluation Form submitted by advisor§ with thesis committee approval
Year 3	Qualifying exam	Prior to Oct. 1	Exam date scheduled no later than 30 days in advance
			Work with graduate coordinator to complete required paperwork **15 business days (3 weeks) prior to the exam.** Research proposal should be submitted to committee no later than **2 weeks prior to the exam**.
Years 4-5	Committee Meeting	Committee must meet once during each academic year and an annual evaluation form† completed	Advisor§ should submit the annual evaluation form (with committee approval) to the program coordinator and graduate office by **July 1** of each academic year.
	Seminar	Yearly research update	See Seminar course director for scheduling

ACADEMIC CALENDAR

*https://www.urmc.rochester.edu/education/graduate/current-students/academic-calendar.aspx

IMPORTANT FORMS

†https://www.urmc.rochester.edu/education/graduate/current-students/forms.aspx

§Though these forms are submitted to the graduate education office, the committee, and the program director by the advisor/mentor, it is the student's responsibility to inform the graduate coordinator that an evaluation is in progress, and ensure they are completed and submitted on time.

Appendix II. Example First Year Course Schedules

	Fall Semester				
Time	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 AM					
10:00 AM		PHP403:Physiology, 4-6912		PHP403:Physiology, 4-6912	
11:00 AM	IND431:Foundations, 1-9576		IND431:Foundations, 1-9576		IND431:Foundations, 1-9576
12:00 PM					
1:00 PM					
2:00 PM				PHP502:Seminar, 4-6912	
3:00 PM		IND501:Ethics, TBA		IND431:Foundations, 1-9576	
4:00 PM					
5:00 PM					

	Spring Semester				
Time	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 AM					
10:00 AM					
11:00 AM	IND432:Foundations, 1-9576	PHP447: Signal Transduction, 4.6912	IND432:Foundations, 1-9576	PHP447: Signal Transduction, 4.6912	IND432:Foundations, 1-9576
12:00 PM					
1:00 PM					
2:00 PM	PHP404:Pharmacology, 4-6912		PHP404:Pharmacology, 4-6912	PHP502:Seminar, 4-6912	PHP404:Pharmacology, 4-6912
3:00 PM					
4:00 PM		IND432:Foundations, 1-9576		IND432:Foundations, 1-9576	
5:00 PM			PHP447: Signal Transduction, 4.6325		

Appendix III. Overview of Thesis Defense Process and Registration of Defense

Overview of Thesis Defense Process and Registration of Defense							
6 months prior	**4 months prior**	**2 months prior**	**5 weeks prior**	**4 weeks prior (25 full working days)**	**3 weeks prior**	**2 weeks prior**	**1 week prior**
Meet with your advisory committee to request approval to begin writing thesis*	Nominate three outside faculty members to serve as Chair for your defense**	Arrange date, time, and location of defense with committee	Provide thesis to your graduate program coordinator to upload to the online system and print copies as needed	Submit thesis copies to your committee (email and hard copy)	Upload to online system finalized and approved by graduate program coordinator	Approval by advisor, committee and program director	Registration of thesis for defense
		Determine committee's preference for thesis format (hard copy/pdf)				Approval by SMD Senior Associate Dean for Graduate Studies	Approval by University Dean for Graduate Studies
		Notify the graduate program coordinator of defense date					
		Initiation of your defense record online***					

*Committee approval to proceed with writing your thesis must be documented. On the annual evaluation/progress report form, the committee should specifically stipulate that that permission to proceed was given in the committee report. If no annual evaluation form is completed, the advisor should email the program director (cc committee and program coordinator) informing them that permission was granted.

**Nominations are submitted to the graduate program coordinator. Close collaborators are unlikely to be selected as Chair. A Chair can only serve on a Thesis Examining Committee once/6 months so if you know of a faculty that has served, don't request that person to be your Chair.

***The graduate program coordinator is responsible for creating your PhD completion site and uploading the required documents. You will have access to this site.

Post-Defense	
Corrections	**Submission of final dissertation**
Minor corrections: The student has 60 days to make minor corrections deemed necessary by the exam committee.	Once all corrections/revisions are completed, student must submit their final dissertation document in pdf format to the UR ProQuest site.
Major corrections: Written document is inadequate to qualify for degree conferral. Student must work with advisor and committee to make all necessary corrections. It is critical that the student, advisor and committee agree upon a detailed description of said corrections and a plan to address them. It is highly recommended that the student/advisor get this description in writing. The student has ~1 year to get final approval on the thesis document. Depending on thesis date and conferral deadlines, approval may be required as early as 9 months from the thesis date.	After your final thesis is submitted, provide a PDF version to your graduate program coordinator who will have three bound copies made – student, advisor, and department library. This is a courtesy (gift) from the Department of Pharmacology and Physiology. You may request additional bound copies, at your expense. Do not request bound copies through ProQuest.
University Graduate Studies (UGS) corrections: The UGS office may also note required corrections to the format of your thesis. This version is uploaded to your PhD Completion Site and the noted corrections must be made on the final uploaded version.	

https://www.urmc.rochester.edu/education/graduate/trainee-handbook/academic-resources/thesis-defense/phd-thesis-defense-timeline.aspx


1850
MELIORA
SCHOOL OF
MEDICINE &
DENTISTRY
UNIVERSITY of ROCHESTER