

PHYSIOLOGY & PHARMACOLOGY
ACADEMIC GUIDELINES AND EXPECTATIONS FOR Ph.D. STUDENTS
(Years 2+)

The following pages outline the Guidelines governing all students electing to pursue the Ph.D. in the Graduate Program of Physiology and Pharmacology (PHPH). All students must complete the requirements described for the Program in Molecular and Cellular Biosciences (PMCB) and the Graduate Council of the Oregon Health and Science University (OHSU) School of Medicine.

The Ph.D. program is organized as follows:

Year 1	Complete PMCB requirements
Year 2	<ul style="list-style-type: none"> • Complete the PMCB Qualifying Examination • Undertake the research leading to the Ph.D. dissertation • Complete required and elective courses • Attend and participate in Departmental Seminars and a journal club of choice as approved by Program Director
Year 3+	<ul style="list-style-type: none"> • Within 6 months of passing QE, create a Dissertation Advisory Committee • Continue research leading to the Ph.D. dissertation • Attend and participate in Departmental Seminars and a journal club of choice as approved by Program Director
Year 5	Attend Ethics refresher course (e.g. CONJ 607)

LINKS

[Graduate Studies – Forms and Policies](#)
[Graduate Programs Academic Regulations](#)
[Basic Sciences Graduate Programs](#)
[PHPH Graduate Program](#)
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PROGRAM CONTACTS

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REQUIRED GRADUATE COURSES IN PHYSIOLOGY AND PHARMACOLOGY

*CON 667 Organ Systems 3 credits
OR
 *CON 669 Chemical Biology 3 credits

Fall Term Year 2:

XXXX 606	Journal Club	1 credit
PHPH 607	Departmental Seminar	1 credit
PHPH 601	Research	8-12 credits
	<u>Elective courses</u>	<u>0-4 credits</u>
	Second Year Fall Term Course Total:	16 credits

Winter Term Year 2:

PHPH 618	Receptor Pharmacology (alternate years)	2 credits
	OR	
PHPH 617	Pharmacokinetics (alternate years)	2 credits
XXXX 606	Journal Club	1 credit
PHPH 607	Departmental Seminar	1 credit
PHPH 601	Research	10-12 credits
	<u>Elective Courses</u>	<u>0-4 credits</u>
	Second Year Winter Term Course Total:	16 credits

Spring Term Year 2:

XXXX 606	Journal Club	1 credit
CON 667 OR CON 669		0-3 credits
	<i>(Taken in Year 2 if not selected during Year 1 as part of the PMCB required courses).</i>	
PHPH 607	Departmental Seminar	1 credit
PHPH 601	Research	7-14 credits
	<u>Elective Courses</u>	<u>0-4 credits</u>
	Second Year Spring Term Course Total:	16 credits

Terms after Admission to Candidacy:

XXXX 606	Journal Club	1 credit
PHPH 607	Departmental Seminar	1 credit
PHPH 601	Research	14 credits
	<u>Course Total</u>	<u>16 credits</u>

Dissertation Defense – Term Requirement:

PHPH 603	Dissertation	16 credits
	Journal club, seminar series and research waived during final term	

A minimum of 135 credits are required for the Ph.D.

PHPH SPECIFIC COURSE REQUIREMENTS:

Students are required to:

- Register for and attend a 606 Journal Club Years 2 through the duration of the program (at least 9 credits required).
- Register for and attend the Departmental Seminar, PHPH 607 Years 2 through duration of program (total of at least 9 credits required). Students are required to give at least one 30-minute presentation on their research once per year in all post-qualifying years as part of the PHPH Graduate Student Seminar Series.

- c. Register for and complete CON 667 or 669 during the spring of years 1 or 2.
- d. Students are required to take two PHPH courses:
 - i. **PHPH 617:** Pharmacokinetics (2 credits, fall term) This course will provide students with an introduction to drug absorption, distribution, metabolism, and elimination.
 - ii. **PHPH 618:** Receptor Pharmacology (2 credits, winter term). This course will provide students with an introduction to the molecular mechanisms of drug action and the principles of drug – receptor interactions.
- e. Students wishing to be excused from taking a required course may petition the PHPH Steering Committee stating their reasoning. A majority vote of the Steering Committee is required for approval.
- f. Students must receive a grade of A or B in all required courses. Students not receiving an A or B in a required course must repeat that course the following year and failure to do so constitutes grounds for termination from the program. The required courses in PHPH for which this rule applies are PHPH 617 and 618.
- g. The grade of Incomplete is reserved for circumstances beyond the control of the student, (e.g. illness) preventing completion of the course requirements by the end of the fall term AND it is possible to complete the requirements within the subsequent term.
- h. Students failing a semester of research credits, (i.e. receives an ‘NP- No Pass’ on research) are immediately placed on academic probation. To return to good standing, the student must obtain a passing grade on the next term of Research (and all subsequent terms). Failure to do so constitutes grounds for termination from the program.

Pre-qualifier Students:

Students are required to notify and meet with their advisor immediately upon receiving an NP grade on Research. The advisor will suggest a course of action for correcting research performance.

Candidate Students:

After advancing to candidacy, students receiving an NP grade in Research will schedule a Dissertation Advisory Committee meeting to take place within two weeks of receipt of the NP grade in Research. The Mentor and Dissertation Advisory Committee will suggest a course of action that the student must follow in correcting research performance.

The courses PHPH 606 Journal Club and PHPH 607 Seminar require documentation of attendance in order to be considered for the grade of ‘Pass.’ Candidate students and their advisor may petition the PHPH Program Director to substitute another formal journal club. Only excused absences (e.g. for participation at scientific conferences, or illness) are allowed. A graduate student with more than one unexcused absence will receive a failing grade of ‘No Pass’ and will be placed on immediate academic probation. The student must receive a ‘Pass’ the subsequent term and every term thereafter.

Following receipt of the first ‘No Pass,’ a pre-qualifying exam student must immediately meet with their 1st year advisor; a post-qualifying exam student must immediately meet with their

dissertation advisory committee. A plan for insuring the attendance goal for the next term should be designed.

Two NP grades results in the immediate initiation of dismissal proceedings from the PHPH Graduate Program.

ELECTIVE COURSES

A total of **two elective courses** from any program are required to be eligible for the degree. Students are strongly encouraged to complete the elective courses during their second year. Courses are listed in the course catalogue and graduate students are encouraged to speak to their mentor and/or graduate program director when considering other courses, as electives are subject to approval by the mentor and graduate director. The following are common electives taken by graduate students in PHPH. Some courses are offered every other year; TBA courses are offered when there is sufficient student interest.

PHPH 614: Neurophysiology and Pharmacology of Pain (2 credits, TBA) Course focused on functional organization of nociceptive pathways.

PHPH 619: Topics in Autonomic Physiology & Pharmacology (3 credits, TBA) This advanced topics course surveys the function and regulation of the autonomic nervous system, and the basis for autonomic drug actions. Topics can include autonomic control of cardiovascular function, energy balance, thermoregulation, respiration, and others.

PHPH 621: The Visual System (2 credits, TBA) This course alternates between Cellular and Developmental Biology of the Visual System in odd numbered years, and Neuroanatomy and Neurophysiology of the Visual System in even numbered years.

PHPH 622: Ion Channels and Genetic Diseases (2 credits, TBA) The course introduces the basic concepts of ion channel function in the context of the origin of inherited diseases and consider how alterations in channel function produce pathophysiological states, such as cystic fibrosis, myotonia and cardiac arrhythmia and the potential bases for therapeutics and directed drug development.

PHPH 630: Advanced Organic Synthesis (4 credits, Spring) This course deals with advanced organic synthesis methods and synthetic planning and execution strategies for complex target compound synthesis. The goal of the course is that students will emerge with a practical understanding of how to apply the tools of organic synthesis to their research.

ACADEMIC PROGRESS

In accordance with the guidelines for graduate students in the School of Medicine, PHPH students must maintain a grade point average of 3.0 in all courses taken for credit. (A = 4; B = 3; C = 2; D = 1). Courses graded on a pass/not pass basis (P/NP) must be completed with a passing grade (P); however courses graded on a P/NP basis do not contribute to calculation of the grade point average. If a student's cumulative grade point average drops below 3.0, the student will be placed on academic probation, requiring that student bring up their grade point average to at least a 3.0 within one academic term. Note that academic probation may limit the availability of some kinds of student loans or other financial aid (for further information contact Registrar's office). A student that fails to do so may be recommended for dismissal for inadequate scholarship, at the discretion of the PHPH Graduate Program.

Graduate students must make appropriate progress in research activities. A PHPH student who receives a grade of not-passed (NP) for a research registration (PHPH 601 or 603) will immediately be placed on academic probation. Academic probation status will be removed when a grade of passed

(P) is received for a subsequent research registration. Students who receive a grade of NP for a total of two terms of research registration (PHPH 601 or 603) will be subject to dismissal from the Program.

Following Advancement to Ph.D. Candidacy, students must meet with their Dissertation Advisory Committee (DAC) on a regular basis. Ideally, students should assemble and meet with their DAC within 6 months after completing their Qualifying Examination. Thereafter, students are expected to meet with their DAC approximately every six (6) months, until the committee decides that the student is ready to defend their dissertation. Students who do not meet with their DAC within six months of advancement to candidacy or within 12 months of a previous DAC meeting will be subject to disciplinary action, including dismissal from the program.

In accordance with the guidelines for graduate students in the School of Medicine, PHPH students must successfully defend their dissertation research within 7 years. Under exceptional circumstances, students may request an extension of this deadline by petitioning the Graduate Program Director, who in turn may present the petition to the Committee on Graduate Studies. A successful petition will require a clear explanation of why the extension is required, and a specific plan (with timeline) for completion of the dissertation if an extension is granted. Students who fail to successfully defend their dissertation within this period will be subject to dismissal.

QUALIFYING EXAM

The Qualifying Exam follows the PMCB guidelines and should be completed before the end of second year.

Eligibility: To be eligible to take the PMCB Qualifying Examination (QE), students must have successfully completed all coursework required in the first two years of the PMCB curriculum, and they must have received a passing grade on the PMCB Comprehensive Examination. Students may take the QE prior to completing all PHPH required coursework. Students may not take the QE if they are on academic probation or if an incomplete grade remains on their transcript.

Format: The QE consists of a written and oral component. The candidate must pass both the written and oral portions of the examination in order to pass. The written component will resemble a NIH-style NRSA grant proposal on any topic chosen by the student, including the student's proposed dissertation research. The oral component will consist of a 20-30 minute presentation by the student on the topic of the written proposal. Members of the student's Qualifying Exam Committee (QEC) will ask the student a series of questions on the proposal and related scientific areas.

Timeline and description – Specific dates for the exam must be arranged with your graduate program, but the following steps are required prior to completing the QE during Summer term. Extension of deadlines for any reason will only be considered by written request to the student's QEC (or PMCB Director if the QEC has not been formed). Students may request permission to take the QE earlier than Summer Term. The request must be made to the PMCB. The request must be pre-approved by the student's dissertation advisor and graduate program director before submission to the PMCB Director.

1. Graduate program directors will oversee selection of the student's QEC.

2. The QEC, responsible for conducting the student's qualifying examination, is appointed by the graduate program director and the student is notified of the names of the panel members.
3. Student schedules a date for the oral examination in consultation with his/her QEC. Work with the Program Coordinator to reserve a room.
4. **At least one week prior to Oral Exam** – Student submits final written proposal to the QEC and their dissertation advisor.
5. **At the Oral Exam – Student submits a letter to the QEC from their dissertation advisor, describing their role during preparation of the proposal (see “Role of Dissertation Advisor and Other Faculty” below).**

If scheduling difficulties exist and the exam cannot be completed by the time grades are due (one week after the end of the term) the student will receive an incomplete “I” grade. Incomplete grades remaining on the student's record after one subsequent term will convert to a no pass “NP”.

Format of Written Proposal: The proposal shall be written following current general guidelines of a NRSA application. It is the student's responsibility to check on the guidelines, which are available on the NIH website. It shall consist of a hypothesis-driven series of experiments bearing directly on the question or hypothesis of the proposal, with a discussion of probable outcomes, interpretations and alternative approaches. The proposal shall be no longer than 7 pages, including figures but not references (single-spaced; 1 page for the specific aims section and 6 additional pages for the rest of the proposal). Students may discuss topics and proposed experiments with all sources (fellow students, post-doctoral fellows, faculty, and visiting scientists), but none of them may be involved in any aspect of the student's written proposal. Students may also seek general assistance in scientific writing and proofreading. However, it must be remembered that the written proposal is an examination, and must represent the student's ideas and development of the research topic. Students are expected to adhere to established guidelines for professional ethical conduct in the preparation of their QE proposal topics.

Role of Dissertation Advisor and Other Faculty: To facilitate an objective examination, the student's mentor is not permitted to edit or comment on the written proposal. Neither is the mentor, nor any other faculty member, permitted to coach the student in a rehearsal of their oral presentation. The student must submit a signed letter from their dissertation advisor describing in specific detail the role of the advisor and of the student in the development of the hypothesis and research plan in this proposal. The dissertation advisor must confirm that they have NOT contributed to the written portion of the exam, and that the student has NOT used any of the advisor's prose within the proposal. The QEC has two weeks from receipt of the written proposal and dissertation advisor letter to request more information from the dissertation advisor if deemed necessary.

Format of Oral Examination: The oral examination will probe the breadth of the student's knowledge and also the depth of the student's understanding of his/her research proposal. Students are expected to begin the oral examination by giving a short (20-30 minute), formal presentation summarizing the written proposal. Audio-visual aids may be used during the summary of the proposal. During the oral examination by the panel, the use of prepared visual aids, textbooks, or other reference material is not permitted. Slides and figures from the oral summary may be referred to if they are the subject of a question from the exam panel. Questions from the Examination Panel should focus primarily on issues pertaining to the proposal; however, the student is responsible for all areas of cellular and molecular biology that have been covered during the first two years of graduate

study. Therefore, students also should expect questions on general knowledge in addition to questions relating to the scientific background pertinent to their areas of specialization, as well as more general issues related to the proposed experiments. Students may be asked about the choice of methodologies, their relative advantages and disadvantages, and potential alternative strategies (when appropriate). Students will be expected to understand and be ready to explain the scientific basis of technical methods they intend to employ. The student should be prepared to discuss the rationale for the proposed study, the strengths and limitations of the proposed experimental strategies, and potential pitfalls and alternatives.

Preparation for the Oral Examination: Students should be thoroughly familiar with key historical and background publications that provide the foundation for their proposal, as well as any current literature that directly pertains to their specific aims. In addition, students are encouraged to review the more general areas of cellular and molecular biology that provide the conceptual framework for their proposal. Once a student has submitted their final written proposal to their QEC, they may contact panel members for guidance in preparing their oral exam presentation.

Outcomes: The outcome will be decided by majority vote of the QEC and be recorded on the PMCB Qualifying Examination form. The form shall be signed by all voting members of the examination panel and returned promptly to the PMCB office. PMCB will inform students of the outcome immediately after the results are received. Possible outcomes include:

Pass –The student passes both the written and oral examination. In certain circumstances, the QEC may identify specific areas of weakness that the student needs to address during subsequent dissertation work. This information will be communicated in writing to the student, dissertation advisor, and PMCB by the chair of the examination panel.

Conditional Pass – A conditional pass may be given for either the written or oral components of the examination if significant deficits are identified. In this case, the student will be provided with specific requirements that must be met within a prescribed time frame. A variety of requirements may be assigned at the discretion of the QEC to correct a perceived deficit, including (but not limited to) additional coursework; revision of some or the entire written proposal; assignment of additional directed reading; preparation of a written review of a particular topic; or presentations in journal club formats. In the case of assigned additional coursework, the student must complete the assigned course(s) with a grade of “B” or better. Within one week of the oral examination, the chair of the QEC will prepare a written statement to the student describing the conditions required to remove the conditional pass.

The chair of the student’s QEC will be responsible for notifying the student, the student’s dissertation advisor, and the PMCB office when the student has successfully completed the requirements of the conditional pass. Failure on the part of the student to complete the requirements within the prescribed time frame will be considered unsatisfactory progress, and the student may be subject to dismissal from the PMCB.

Fail – If the student fails either portion of the examination, the student fails the Qualifying Examination. Within one week of the examination, the chair of the Examination Panel will provide a written statement to the student, the dissertation advisor and the PMCB office, describing the

deficiencies that led to failing the qualifying examination. The student may petition the QEC to take the qualifying examination (written and oral) again within the subsequent three months, or alternatively may resign from the graduate program. The QEC may also elect to offer the student the option to complete a Master's Degree, rather than re-taking the Qualifying Examination. In such a case, students will be obligated to complete all the requirements for the Master's Degree of their home graduate program. The QEC will counsel the student with respect to the most prudent course of action. If the student decides to re-take the Qualifying Examination, then he/she must submit a revised or new proposal to the QEC as summarized above; and will have five weeks to complete the full proposal.

Timeline for re-examination: The re-examination procedure must be completed within three months of the original examination, but no later than the end of Fall term of that year.

Outcome for re-examination: Students will be assigned a "pass," "conditional pass," or "fail" by the same criteria as summarized above. Failure to pass the QE after two attempts will automatically result in dismissal from the graduate program.

Qualifying Examination Committee involved in the administration of PMCB Qualifying Examinations (QEC - 5 members): This committee is responsible for administering a specific qualifying examination. For each student, the Program Director will appoint an examination panel of five faculty members and assign one panel member to serve as chair. PMCB recommends that three of the panel members have primary appointments in the graduate program. Each of the five members of the QEC will participate in the examination process and vote on the outcome. In addition, a non-voting member representing PMCB may attend all deliberations and meetings of each QEC. The student's advisor/mentor may NOT be appointed to the panel. The advisor/mentor may attend the qualifying examination as a non-voting, silent observer. The advisor/mentor may NOT attend sessions when the panel privately discusses the student's performance, except at the unanimous invitation of the panel. The QEC will be responsible for evaluating the written and oral components of the examination, for determining the outcome, and for identifying any requirements that a student must complete in the case of a conditional pass. Each student will have their own QEC, though PMCB faculty may serve on multiple panels. All students should refer to individual graduate program QE guidelines as well to ensure compliance.

ADVANCEMENT TO PH.D. CANDIDACY

Students will Advance to Ph.D. Candidacy once they have passed their Qualifying Examination and have formed their Dissertation Advisory Committee.

Ph.D. DISSERTATION ADVISORY COMMITTEE GUIDELINES

Within **three months** of passing the Ph.D. qualifying exam, the advisor and student must submit a suggested dissertation advisory committee to the Graduate Program Director for approval. The following guidelines for the composition of the committee should be followed.

- A. The committee should include the advisor and at least 3 other faculty members who represent expertise relevant to the student's thesis project.

- B. All members of the advisory committee must be members of the OHSU Graduate Faculty.
- C. At least one member other than the advisor must be experienced in advising a Ph.D. dissertation student; that is, he/she must have been a mentor for at least one student who has successfully completed their Ph.D.
- D. The student's mentor will not serve as the Chair of the committee. The responsibilities of the chair are:
 - a. To schedule and coordinate the meetings
 - b. To submit a completed Dissertation Advisory Committee meeting summary to the GSC. Copies of the summary will be distributed to the student and the advisory committee members and the Chair of the Graduate Education Committee and a copy will be deposited in the student's file in the Department Office.
- E. The student must meet at least once per year with the Dissertation Advisory Committee. Following completion of the third year, the student should meet more frequently (every six months) on the recommendation of his/her committee. One week prior to each committee meeting, the student should submit a summary of research accomplished and proposed to committee members. A copy should also be submitted to the Graduate Student Coordinator.
- F. The Steering Committee will be responsible for monitoring adherence to these guidelines.

PREPARATION AND SUBMISSION OF DISSERTATION

- A. All instructions and guidelines adopted by the Graduate Council By-Laws shall be followed carefully.
- B. The formatting of the dissertation should comply with the standards set out by the SOM graduate council:
<http://www.ohsu.edu/ohsuedu/academic/som/graduate/upload/Guidelines-8-2008-rev-4-2009.pdf>
- C. In addition, the Graduate Program of Physiology and Pharmacology requires the following actions in order for the student to present their dissertation:
 - 1. The student must meet with their Dissertation Advisory Committee and receive permission from the entire committee to begin writing their dissertation.
 - 2. The student will collaborate with their mentor to write the dissertation, and re-write as necessary, prior to the committee receiving the draft dissertation.
 - 3. The Graduate Student Coordinator will complete a Request for Oral Dissertation Examination Form and submit it to the PHPH Program Director for approval. The PHPH Program Director will then forward it on to the Associate Dean of Graduate Studies. The submission of this form to the Dean's Office must be at least four weeks prior to the date of the exam. It is recommended that at this time, the student submit a copy of their dissertation to the Dissertation Examination Committee. The student must submit their dissertation no later than two weeks before the examination in order for the exam to take place as scheduled.
 - 4. The Dissertation Advisory Committee will submit to the Graduate Student Coordinator a list of suggested members for the Dissertation Examination Committee along with a suggestion for the Dissertation Examination Chairperson. The Dissertation Examination Committee should include at least one member who was not on the Dissertation Advisory Committee, at least one member who is not a member of the PHPH Program, and at least one {two?} member who has a primary appointment in the Department of Physiology and Pharmacology.
 - 5. The Dissertation Advisory Committee Members shall review the dissertation prior to the defense and return it to the student with their comments and guidelines for revision. The comments should be returned to the student no later than the oral defense date.

Some revision is normally required.

6. After the post-defense corrections and required revisions have been made, the student will re-submit the dissertation to their Dissertation Advisory Committee for a final review process that is to be completed within two weeks of committee members receiving the dissertation.
7. All members of the Dissertation Advisory Committee must sign the Dissertation Approval Form.

TRAINING IN THE RESPONSIBLE CONDUCT OF RESEARCH

The National Institutes of Health requires continued ethics training for all trainees, fellows, participants, and scholars receiving support through any NIH training, career development, research education, and dissertation research grant (NOT-OD-10-019). To meet this requirement, all graduate students are required to:

- Complete CONJ 650 The Practice and Ethics in Science during their first year
- Complete second ethics course during their 5th year

ETHICAL AND PROFESSIONAL BEHAVIOR

Graduate students are expected to maintain high ethical standards. Graduate students should demonstrate honesty in all aspects of research activities. Student should learn about and avoid sources of error in scientific research. It is essential that student do not misrepresent scientific findings or misappropriate credit. All graduate students are required to take a course concerning ethics and science. Students should show cooperation, responsibility, and respect in working with other students and faculty. Students should be considerate of the cultural and individual diversity of their colleagues.

Students who are involved in unethical or unprofessional conduct such as cheating, misrepresentation of research findings, plagiarism (failure to credit the original author), or disruption of the learning process are subject to disciplinary action including dismissal from the department.

It should also be noted that students observing unethical behavior by students, faculty, or others on campus are obligated to bring these transgressions to the attention of the appropriate person. See the OHSU Code of Conduct for further information.

MISCELLANEOUS

Grievances

The procedure for handling grievances is outlined in the OHSU Graduate Studies Handbook.

Extracurricular employment:

The Graduate Program of Physiology and Pharmacology considers graduate studies in the Ph.D. program to represent full time effort. Students are strongly discouraged from seeking outside employment. Any student wishing to pursue outside employment must submit a written request to the 1st year advisor and/or mentor, and the Director of the Graduate Program of Physiology and Pharmacology. The student must receive written authorization from the above individuals prior to accepting employment.

Master's Degree

The OHSU Graduate Program of Physiology and Pharmacology does not routinely offer a Master's degree. Under special circumstances, a student may petition the Graduate Steering Committee in writing to allow the student to complete a terminal Master's degree. Approval of this request by the Graduate Steering Committee must be unanimous. A written thesis and oral thesis defense examination are required to earn a Master's degree. A minimum of 80 completed credit hours is required for the Master's degree. A thesis advisory committee is required, the composition of which is in keeping with section IV C of these guidelines.