

MOLECULAR MICROBIOLOGY & IMMUNOLOGY ACADEMIC GUIDELINES & EXPECTATIONS FOR PH.D. STUDENTS

PROGRAM REQUIREMENTS

Graduate students in the department of Molecular Microbiology & Immunology must fulfill both MMI and PMCB requirements with a grade of B- or better, including:

MMI requirements

- At least three elective graduate courses of three or more credits each offered by MMI or other departments or CONJ courses. The MMI courses are MBIM 615 (Dynamic Interface between Pathogen and Host), MBIM 608 (Advanced Virology) and MBIM 612 (Advanced Immunology). MBIM 610 (Introduction to Immunology) is a 2-credit course offered every year in the winter term, and is strongly recommended for first year students who are interested in joining MMI but who may not have completed an introductory immunology course or an immunology section of a comprehensive undergraduate microbiology course. As a 2-credit course, it does not count towards the three graduate course requirement. Students are expected to take courses related to their thesis topic, in consultation with their advisor and committee.
- MBIM 605 One of the MMI journal clubs. Required every term.
- MBIM 607 MMI Department Seminar Series. Required every fall, winter, and spring term.

PCMB requirements (partial listing)

- CONJ 650 Practice and Ethics of Science
- CONJ 661 Structure and Function of Biological Molecules
- CONJ 662 Genetic Mechanisms
- CONJ 663 Bioregulation
- CONJ 664 Cell Structure and Function
- Two of the CONJ series electives (CONJ 665, 667, 668, 669) offered in the spring term. Students may request permission from the PMCB to substitute an advanced graduate course of equal or greater credit for one of the required CONJ spring courses. For example, students planning to join MMI frequently substitute MBIM 608 (Advanced Virology) or MBIM 612 (Advanced Immunology) for a spring CONJ elective because these courses are offered only every other year. Note that an advanced course taken in place of a CONJ elective does not fulfill the MMI requirement for three additional graduate courses beyond the PMCB requirements.
- Three terms of laboratory rotations

All PMCB requirements and MMI elective requirements must be satisfied before advancement to candidacy. It is expected that MMI electives will be completed by the end of year three the latest.

If you have questions regarding the program requirements, contact the MMI Graduate Coordinator.

General Timetable for most MMI graduate students (12-16 credit hours should be taken each term including summer terms):

Year 1 - PMCB Courses

The main goal for the first year is to pass coursework with a "B-" or better grade and to identify a mentor with whom to work. In addition to the required course work, it may be desirable to take one or more elective courses. Some electives are offered once every two years and it may be desirable to take some electives during the first year in order to prepare for the qualifying exam at the end of the second year.

Year 2:

Complete required PMCB courses and begin fulfilling MMI course requirements. A grade of B- or better is required in all courses. Prepare for and complete the 2nd-year candidacy exam, which is required of PMCB students during the summer of their second year. The majority of the student's time and effort should be in research and in acquiring the laboratory skills and conceptual framework necessary for thesis work.

Year 3 and up:

Continue research work leading to the Ph.D. dissertation and complete all MMI elective course requirements. Register for and attend Departmental Seminar Series and an MMI Journal Club. It is School of Medicine Graduate Council policy that students should complete all requirements for the Ph.D. within 7 years of matriculation.

Courses

MBIM 608 - Advanced Virology

4 credits, Spring term, alternate years beginning 2011. David Johnson, Ashlee Moses
This course covers molecular biology and immunology of eukaryotic viruses. Particular emphasis is placed on structure, transcription and replication, entry, assembly and egress, latency, and oncogenesis.

MBIM 610 - Introduction to Immunology

2 credits, Winter term, yearly. David Parker
This introductory course will provide students with an overview of how the immune system works and the special vocabulary and experimental systems that describe it. Reading and discussion of the textbook (Immunology by Janeway, et al.) with study questions and occasional experimental papers. The course is designed for two kinds of students; those specializing in other areas who want to learn enough immunology to gain access to the experimental literature and those with a particular interest in immunology as preparation for the Advanced Immunology course.

MBIM 612 - Advanced Immunology

4 credits, Spring term, alternate years beginning 2010. Mark Slifka
This course is intended for students who have had Introduction to Immunology or equivalent. The intention is to cover, in some depth, important concepts and some current issues in basic molecular and cellular immunology. The course will be primarily literature based, supplemented as necessary with lectures, review articles and textbook material. Students are expected to read the assigned material and to discuss questions in the class. The course is taught by a small number of faculty, each of whom covers one area. Because the areas covered are chosen to reflect the areas of major active research in immunology, the actual topics may vary from year to year. Recent areas covered include: T cell activation and the immune synapse, NK receptors and related molecules and the expanding family of MHC class I like ligands; T and B cell development; T and B cell memory; toll-like receptors; T cell trafficking.

MBIM 615 - Dynamic Interface Between Pathogen and Host

4 credits, Spring term, yearly. Eric Cambronne, Georgiana Purdy
This course will explore strategies by which microorganisms avoid and subvert host defenses to cause disease. Emphasis is on the molecular basis of microbial pathogenesis. We will cover several mechanisms shared by bacteria, viruses and parasites. Topics in the first half of the course include intracellular and extracellular infection strategies, microbial exploitation of the host vacuolar trafficking system, bacterial virulence gene regulation, secretion of effector molecules and toxins. The second part of the course will delve into host innate immune defenses, microbial avoidance and manipulation of immune signaling pathways, features of latent and persistent infections, and how commensal organisms interact with the host immune system. Finally, we will look into the future of microbial pathogenesis and discuss the role of "omics" in understanding pathogens and the potential of mathematical modeling of infections. This course will consist of both lectures and critical analysis of primary research literature. There will be two exams of equal weight, with the final examination being comprehensive.

Notes to Course Requirements

Students are required to:

1. Attend monthly PMCB Seminar Series
2. Register for and attend MBIM 605 Journal Club every term
3. Register for and attend the Departmental Seminar, MBIM 607, through end of program

If a student wishes to be excused from taking a required course, the student and advisor should jointly petition the MMI Graduate Program Director stating their reasons for wishing to be excused from the requirement.

Entering students are strongly encouraged to take the winter term MBIM 610 Introduction to Immunology as a means of becoming familiar with the discipline. However, students may elect to postpone this course to winter term of their second year.

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.

Students failing a term 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 a 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 Thesis Advisory Committee meeting to take place within two weeks of receipt of the NP grade in Research. The mentor and Thesis Advisory Committee will suggest a course of action that the student must follow in correcting research performance.

The courses MBIM 605 Journal Club and MBIM 607 Seminar require documentation of attendance in order to be considered for the grade of "Pass". Post-qualifying, a student and advisor may petition the MMI Graduate Program Director to substitute another formal journal club.

Seminar attendance: A student is allowed 3 unexcused absences during the year. More than 3 unexcused absences during the year will result in a grade of "No Pass".

Following receipt of the first "No Pass", a pre-qualifying exam student must immediately meet with their mentor; a post-qualifying exam student must immediately meet with their Thesis Advisory Committee. A plan for insuring the attendance goal for the next term should be designed.

Pre-qualifier Students: Two grades of "No Pass" in any one of the three activities disqualifies a student from taking their qualifying exams, resulting in dismissal from the MMI Graduate Program.

Candidate Students: Two grades of "No Pass" in any one of three activities for a candidate student may result in dismissal from the MMI Graduate Program.

MMI Qualifying Exam

Preparatory course

Enrollment in PHPH 607 Grant Writing & Qualifying Exam Preparation is strongly recommended. This 1-credit course is offered in the spring. As a 1-credit course, it does not count towards the MMI three graduate course requirement.

Qualifying Exam

MMI Qualifying Exam follows the format and guidelines listed on the OHSU PMCB website: <http://www.ohsu.edu/xd/education/schools/school-of-medicine/departments/basic-science-departments/molecular-cellular-biosciences/programs/pmcb-curriculum.cfm>

Ph.D. Thesis Advisory Committee Guidelines

Within three months of passing the Ph.D. candidacy exam, the advisor and student must submit a suggested Thesis Advisory Committee to the MMI 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. At least one member of the Committee must NOT have a primary appointment in MMI.
- C. At least one member other than the advisor must be experienced in advising a Ph.D. thesis student; that is, he/she must have been a mentor for at least one student who has successfully completed their Ph.D.
- D. Ordinarily, the student's mentor will serve as the Chair of the Committee. The responsibilities of the chair are:
 1. To schedule and coordinate the meetings
 2. To submit a completed Thesis Advisory Committee meeting summary to the Graduate Student Coordinator. Copies of the summary will be distributed to the student, the Advisory Committee members and the MMI Graduate Program Director. A copy will be deposited in the student's file in the MMI Department Office.
- E. The student must meet at least once per year with the Thesis Advisory Committee. Following completion of the third year, the student may meet more frequently 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 the Graduate Student Coordinator who will distribute it to Committee members. Electronic submission to the Graduate Student Coordinator is acceptable.
- F. The MMI Graduate Program Director will be responsible for monitoring adherence to these guidelines.

MMI Preparation and Submission of Thesis

All instructions and guidelines adopted by the Graduate Council By-Laws shall be carefully followed.

MISCELLANEOUS

Grievances

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

Extracurricular employment

The Department of Molecular Microbiology and Immunology considers employment as a graduate student in the Ph.D. program to represent fulltime employment. Any student wishing to pursue outside employment must submit a written request to the TAC advisor and/or mentor, the MMI Graduate Program Director and the Chair of MMI. The student must receive written authorization from the above individuals prior to accepting employment.