



JOHNS HOPKINS  
BLOOMBERG  
SCHOOL of PUBLIC HEALTH

*Department of Molecular Microbiology and Immunology*



DOCTOR OF PHILOSOPHY  
HANDBOOK  
(PhD)

**Student Guidebook**

*September 2009*

**DEPARTMENT OF MOLECULAR MICROBIOLOGY AND IMMUNOLOGY**  
**LOCATIONS AND PHONE NUMBERS OF FULL-TIME TEACHING FACULTY**

Name	Office	Telephone
Dr. Peter Agre	E5146	7-8743
Dr. Jay Bream	E5624	2-2511
Dr. Isabelle Coppens	E5648	7-1589
Dr. George Dimopoulos	E4630	7-0128
Dr. Rhoel Dinglasan	E5646	4-4839
Dr. Gregory E. Glass	E3632	5-3708
Dr. Diane E. Griffin	E5132	5-3459
Dr. J. Marie Hardwick	E5140	5-2716
Dr. Egbert Hoiczky	E2624	7-2898
Dr. Marcelo Jacobs-Lorena	E4632	7-0839
Dr. Richard Johnson	E5644	4-5293
Dr. Gary W. Ketner	E5138	5-3776
Dr. Sabra L. Klein	E5634	5-8898
Dr. Nirbhay Kumar	E5144	5-7177
Dr. Elena Levitskaya	E2622	2-9131
Dr. Joseph Margolick	E5153	5-1436
Dr. Richard B. Markham	E5150	5-9601
Dr. William Moss	E6545	2-1165
Dr. Douglas Norris	E3628	5-2710
Dr. Andy Pekosz	E5636	2-9306
Dr. Fernando Pineda	E3626	7-3673
Dr. Sean Prigge	E4628	7-4822
Dr. Jason Rasgon	E4626	2-2584
Dr. Noel R. Rose	E5014	5-0330
Dr. Alan L. Scott	E5152	5-3430
Dr. Keerti V. Shah	E2039	5-3189
Dr. Clive J. Shiff	E5142	5-1263
Dr. David Sullivan	E5628	2-2522
Dr. Milan Trpis	E5139	5-3475
Dr. Xiao-Fang Yu	E5148	5-3768
Dr. Fidel Zavala	E3630	7-1769
Dr. Ying Zhang	E2037	4-2975
<b>MMI Offices</b>	<b>E5008/E5132</b>	<b>4-4232/5-3457</b>

This Guidebook, which supplements the School's *2009-10 Student Handbook*, is intended to summarize most of the School and Departmental requirements for your degree program. In addition, other practical information is included for your convenience.

The academic advisor assigned to you will assist you in the decision-making process during the initial phase of your studies.

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## INTRODUCTION

The goal of the training programs in this Department is to provide a solid foundation in the biomedical sciences for a small group of carefully selected graduate and postgraduate students interested in addressing outstanding issues underlying infectious and immunologic diseases of public health importance. It aims to equip students with a diversity of disciplinary concepts and methodological tools to solve specific disease-related problems. This holistic approach requires a common core of knowledge of the populational, clinical, cellular and molecular aspects of disease.

## STRUCTURE OF THE DEPARTMENT

The administration of the Department is the task of the Chair, Dr. Diane E. Griffin, who has the overall responsibility for the educational and research programs in the Department. Major policies of the Department are adopted at monthly meetings of the full-time faculty. A representative of the Departmental student body attends the faculty meetings. A number of committees comprising intramural and extramural faculty and, in most instances, a student representative, voted for or volunteering at a meeting of the Departmental Student Association, carry on much of the business of the Department. The chair appoints the committees annually and membership rotates among the faculty. Each committee is responsible for some aspect of the Department's activities.

**1. Graduate Program Committee** The overall responsibility for setting policy with respect to Departmental graduate students is vested in the Graduate Program Committee (GPC). The committee, with Dr. Gary Ketner currently serving as Chair, monitors the program of each graduate student, reviews the progress of each student on a semi-annual basis, and assures the maintenance of appropriate academic standards. The Graduate Program Committee meets on a regular basis and reports monthly at the Departmental faculty meeting, so that the entire faculty is kept informed of all policies and any specific problems that have occurred. The Graduate Program Committee

- a. is responsible for the review and evaluation of the graduate program;
- b. is responsible for monitoring and evaluating satisfactory academic progress of each student;
- c. develops general policies for the graduate program; for example, recommends requirements for intramural, extramural and part-time students;
- d. develops requirements for student advisement, coursework, and the comprehensive written examination;
- e. handles requests from students for exemptions from Departmental requirements.
- f. deals with policies regarding other aspects of student life in the Department.

The Graduate Program Committee also has overall responsibility for the Departmental curriculum. In this capacity, the Graduate Program Committee

- a. reviews content and organization of curriculum within the department
- b. approves new courses and changes to existing courses

Student Communication with the Graduate Program Committee Because many of the matters that come before the Graduate Program Committee involve individual students and therefore are confidential, the GPC does not include a student member. However, the GPC welcomes comments, questions, and concerns from the departmental students. Students can communicate with the GPC in several ways. 1. Students may request that either the Student Coordinator or the departmental Graduate Officer present issues to the committee (both individuals attend each GPC meeting). 2. The President of the Graduate Student Organization, acting as

representative of the students, may request a meeting with the GPC to discuss a specific matter of concern to students. 3. Students may ask any departmental faculty member (for example their advisor, the departmental chair, or the chair of the GPC) to address the GPC on an issue or concern.

**2. Committee on Admissions and Financial Support** This committee is charged with the responsibility of selecting the best-qualified students for admittance to the Department. It works closely with the Graduate Program Committee to assess the financial needs of new and continuing students and to assign the available financial support based on merit and need. Dr. Sean Prigge chairs this committee. The Committee on Admissions and Financial Support

- a. develops general requirements for admission to the Department and, in consultation with the Chair, decides the number of students to be admitted;
- b. evaluates student applications for admission to the Department as degree candidates or for regular and special student status;
- c. reviews requests from students for transfer to another degree program or to or from another Department;
- d. develops, with the concurrence of the Graduate Program Committee, a program of courses for regular special students who plan to re-apply for acceptance into a degree program in the Department;
- e. recommends eligible new and/or continuing predoctoral students for tuition and stipend scholarships.

**3. Graduate Officer** A new Graduate Officer is selected by the students each year from among members of the Departmental faculty. His/her duties include establishing personal contact with individual students to ascertain good rapport among students, advisory committees and thesis advisors. The Graduate Officer serves as ombudsman to mediate any student problems that may arise. The Graduate Officer

- a. assists the Department Chair with respect to student affairs;
- b. provides information to the Graduate Program Committee for adequate evaluation of a student's progress;
- c. assists students in matters affecting their standing in the Department;
- d. keeps abreast of all regulations and requirements for Departmental students.

**4. Graduate Student Organization** All MMI graduate students are members of the MMI Graduate Student Organization (GSO). The GSO generally meets at the annual departmental retreat to elect officers, and can meet at other times as often as the students desire. Apart from the annual retreat meeting, GSO meetings and activities are organized by the students. Officers elected by the GSO who bear specific official responsibilities are a President, who can speak for students at GPC meetings, a representative to the School's Student Assembly, and Student Admissions Coordinators. Additional officers (Social Chair, Treasurer, etc.) can be chosen by the GSO if it wishes. In the past, activities sponsored by the GSO have included charity events, fundraisers, bowling parties, student birthday celebrations, etc.

**5. Facilities Committee** The Facilities Committee, chaired by Dr. Alan Scott, supervises the operation and maintenance of commonly shared resources. The Facilities Committee

- a. monitors and administers common-use equipment and facilities. This involves the establishment of a budget for the administration of common-use facilities and equipment and for the purchase of common-use equipment;
- b. monitors common-use space, which includes, for example, the cold rooms, warm rooms, and areas where common-use equipment items are located;

- c. serves in an advisory capacity to the Department Chair on space needs. The committee members may also serve as site visitors in order to analyze space requirements to ensure the efficient use of space and to make recommendations for optimum utilization of available space to the Chair.

**6. Appointments and Promotions Committee** This Committee, composed of full-time faculty at the level of Associate Professor and Professor ranks, advises the Department Chair on:

- a. faculty promotion and tenure decisions;
- b. new appointments to the faculty.

The Department of Molecular Microbiology and Immunology follows the University's Policy Statements on Nondiscrimination of Students, Privacy Rights of Students, Alcohol Abuse and Drug-Free Workplace, Award of Degrees, Smoking, and Sexual Harassment as specified in the catalog.

## THE DEPARTMENTAL PHD PROGRAM AND REQUIREMENTS FOR PHD DEGREE STUDENTS

There are several levels of requirements for the completion of degree programs: those set by the school, those set by the department and those set by the thesis advisor. The degree requirements established by the School are contained in Policy and Procedure Memoranda available at:

[http://www.jhsph.edu/schoolpolicies/ppm\\_academic\\_programs\\_3.html](http://www.jhsph.edu/schoolpolicies/ppm_academic_programs_3.html). School procedures information and forms can be found here: <https://my.jhsph.edu/C4/DoctoralCandidateInfo/default.aspx> The Departmental requirements for Molecular Microbiology and Immunology (MMI) are explained in this Student Guidebook. A student's thesis advisor generally will set requirements regarding the preparation for, and completion of, the thesis or dissertation project. A brief summary with an approximate timetable of the requirements of the school and of the department is included at the end of this section.

**Advisors.** Each new student is assigned an MMI faculty member as his/her academic advisor for the first year. The academic advisor assists the student in the selection of appropriate courses for the first year, acts as the student's source of information concerning school and departmental policies and procedures, helps the student with problems he/she may encounter, and is generally the faculty member in charge the student's first laboratory rotation. A student who wishes to change his/her academic advisor should contact the Student Coordinator, who will consult the GPC.

Selection of a thesis advisor takes place after completion of laboratory rotations (see below) and prior to the first term of the second year. After discussion with the prospective thesis advisor, the student should submit a completed Thesis Advisor Selection form (available on the departmental web site), signed by the prospective advisor, to the Student Coordinator for approval by the department Chair. Requests for extra time to determine a thesis advisor should be submitted to the Student Coordinator.

Approval of thesis advisor selection will take into account the interests of the student and the faculty member and the availability of resources in the faculty member's laboratory (e.g, funds, space, faculty time). Every effort will be made to accommodate a student's request to work with a specific faculty member for his/her thesis research. However, the department cannot guarantee that a student will be able to work in the laboratory that he/she selects as a first choice. In the event that a student's first choice cannot be met, an alternative will be arranged in consultation with the student.

Ph.D. students are actively discouraged from conducting their thesis research in laboratories outside of MMI (for example, at other institutions or in departments other than MMI). In unusual circumstances, waiver of this policy may be requested from the GPC. Requests must include compelling reasons why thesis research cannot be conducted within the department, assurance from the proposed extra-departmental thesis advisor that financial support will be provided, a detailed research plan and timetable, and an agreement by a member of the MMI faculty to act as co-advisor. In no case will MMI provide financial support for students conducting thesis research in other departments or institutions. This policy does **not** apply to field work conducted off-campus under the direction of an MMI faculty member.

**Thesis Advisory Committees.** Each student should form a Thesis Advisory Committee within one year of beginning thesis research. Thesis Advisory Committees are intended to increase opportunities for students to obtain faculty advice and to permit periodic evaluation of the student's research progress. Student advisory committees consist of a minimum of three faculty members, two of whom must be full-time members of the department with rank of assistant professor or higher. Committee members are jointly selected by the student and the thesis advisor. Students are encouraged to take advantage of the breadth of expertise available at the university and nearby institutions by selecting advisory committee members from outside the department. Outside members should have academic rank equivalent to assistant professor or above.

Student advisory committees are expected to meet at least once a year to review and evaluate the student's progress in his/her thesis research project. Following each meeting, the committee will complete a Student Advisory Committee Report form (included in the Guidebook and available on the departmental web site) summarizing the student's progress and performance and indicating any problems that may have been identified. The form should be submitted to the departmental Student Coordinator. Reports will be reviewed annually by the GPC. It is the responsibility of the student and his/her faculty advisor to ensure that the annual review by the advisory committee takes place. Failure to hold the annual review may jeopardize financial support the student receives from the department or from the school

Thesis Advisory Committees are intended to offer advice and perspective. A student's thesis advisor retains final authority to approve or disapprove any committee action and/or recommendation relating to the student's coursework and research.

**Laboratory Rotations.** Rotation periods in a series of laboratories broaden a student's knowledge of laboratory techniques and skills, expose him/her to a variety of research areas, help him/her to select a laboratory for thesis research, provide an opportunity for interaction with several faculty members, and develop his/her ability to carry out a research project. Doctoral students must rotate through three laboratories. All supervisors for the required rotations must hold a primary full-time appointment in MMI.

During a laboratory rotation, a student is given a specific research problem of limited scope as his/her rotation exercise. This provides close interaction with the faculty member who supervises the rotation. It is not expected that a student necessarily complete the assigned project. At the end of the laboratory rotation term, the student will give a short oral presentation of his/her research project at the Research Forum in Molecular Microbiology and Immunology (see below). The rotation supervisor will submit a written evaluation of the student's performance to the Student Coordinator and will assign a grade of Pass or Fail. Failing grades will be given for not having spent sufficient time in the laboratory or for an unsatisfactory performance in the laboratory.

Each laboratory rotation lasts about 11 weeks. Rotation starting and ending dates are listed in Table 1. Because laboratory rotations do not correspond to standard academic terms, students should register for the Laboratory Rotations course (260.851) during the first, third, and fourth terms.

Table 1

<b>Rotation Period</b>	<b>Dates</b>	<b>Register in term</b>
First	8/27/09-11/27/09	1
Second	11/30/09-02/26/10	3
Third	3/1/10-5/28/10	4
<b>2009-2010 MMI Laboratory Rotation Schedule</b>		

The first rotation generally will be conducted in the laboratory of the student's academic advisor, who is assigned by the GPC. The selection of laboratories for subsequent rotations is the responsibility of the student. Students (with the assistance of their academic advisor) should identify potential laboratories for their rotations and consult with the faculty members in charge of these laboratories to arrange a rotation for a particular academic term. To assist students in identifying the research interests of the faculty, each faculty member has prepared a short summary of his/her ongoing projects which can be found on their official school web pages: <http://www.jhsph.edu/dept/MMI/Faculty/index.html>

Students may conduct rotations in addition to the three required in order to explore other laboratories or to learn particular laboratory techniques or skills. These extra rotations may be conducted in departmental laboratories or in labs outside MMI. Because PhD students generally must conduct thesis research in a laboratory within the Department, **rotations outside the Department should not be considered a means for identifying potential thesis research laboratories.**

It is expected that substantial time will be spent in the laboratory during each rotation. In the case of questions on this point, seek the advice of your rotation mentor, the Graduate Office, GPC chair or MMI faculty member. Note that for registration purposes, laboratory rotations are used to 'top off' credits to the required level of 22 (see below). Therefore, there is no strict correspondence between credits and hours spent in the lab. Because students do not register for Laboratory Rotations in Term 2, Special Studies/Research is used for the same purpose.

**Research Forum and Laboratory Rotation Reports.** Ph.D. students must present reports after each of their laboratory rotations and periodically during their research work. These oral reports will be delivered during weekly Departmental Research Forum. Rotation reports are 20 minutes long and research reports are 30 minutes long. Presentation dates are assigned by the Student Coordinator; rotation reports generally will be scheduled within one to three weeks of the completion of the rotation.

In preparing a rotation report, students should keep in mind that it is most important to provide sufficient background and a sufficiently good explanation of the experimental rationale to make the rotation project and its objectives understandable by a diverse audience. As noted above, it is not required that students successfully complete their assigned rotation project, and many rotation reports cannot include firm conclusions. This is not a shortcoming if the presentation is clear, intelligible, and presents good analyses of any difficulties encountered.

#### Suggested organization of Rotation and Research Reports

1. *Introduction* - Present the background and rationale of the work and outline the working hypothesis.
2. *Experimental Design* - Describe the overall experimental approach. Do not present the minor details of experimental protocol. Explain how the study will provide evidence for or against the working hypothesis outlined in the introduction.
3. *Results/Discussion* - Results should be presented in an organized, meaningful and comprehensible manner. They should be compared with reports from the literature (if any) and be analyzed in the context of the working hypothesis.
4. *Summary/Conclusion* - Provide a short summary of the results and give an indication of future research directions.

An evaluation form (included in the Guidebook and available on the departmental web site) will be completed by two students and two faculty and returned to the student to provide constructive comments to improve future presentations.

## Required Courses.

**First Year:** The Department requires that all Ph.D. students take the following courses in the first year. These courses must be passed with a grade of A or B; students not meeting that standard must repeat the relevant course(s) and pass with an A or B. Students may repeat a required course only once. Students must register for 22 credits each term. In general, classroom/seminar credits will not total 22; in that case, students should register for **260.851 Laboratory Rotation** (Terms 1, 3, and 4) or **260.840 Special Studies/Research** (Term 2) to make up the difference. (See Laboratory Rotations, above).

### TERM 1:

Introduction to Online Learning: <a href="http://distance.jhsph.edu/iol/">http://distance.jhsph.edu/iol/</a>	(non-credit)
260.611 Principles of Immunology I	(4 units)
260.623 Fundamental Virology	(4 units)
260.822 Seminars in Research in Molecular Microbiology and Immunology	(1 unit)
260.821 Research Forum Molecular Microbiology and Immunology	(1 unit)
260.852 Molecular Biology Literature	(2 units)
260.801 Topics in Immunology	(2 units)
260.851 Laboratory Rotation	(8 units)

### TERM 2:

260.612 Principles of Immunology II	(4 units)
260.652 Principles of Public Health Ecology	(4 units)
260.627 Pathogenesis of Bacterial Infections	(4 units)
260.822 Seminars in Research in Molecular Microbiology and Immunology	(1 unit)
260.821 Research Forum in Molecular Microbiology and Immunology	(1 unit)
260.802 Topics in Immunology	(2 units)
260.840 Special Studies/Research	(6 units)

### TERM 3:

260.635 Biology of Parasitology	(6 units)
260.822 Seminars in Research in Molecular Microbiology and Immunology	(1 unit)
260.821 Research Forum in Molecular Microbiology and Immunology	(1 unit)
260.625 Scientific Method Applied to Grant Writing (Pass/Fail)	(2 units)
260.851 Laboratory Rotation and elective courses	(12 units)

### TERM 4:

260.822 Seminars in Research in Molecular Microbiology and Immunology	(1 unit)
260.821 Research Forum in Molecular Microbiology and Immunology	(1 unit)
260.851 Laboratory Rotation and elective courses	(20 units)

**Second Year:** PhD students must also complete three of the eight courses of the BCMB *Foundations of Biology* program offered at the School of Medicine. ME 260.709 Molecular Biology and Genomics and ME 110.728 Cell Structure and Dynamics are required. The student is free to choose the third course. Please note that the dates of the academic terms at the School of Medicine are different from the School of Public Health. Please reference their website: [www.hopkinsmedicine.org/som/students/academics/GradCourses.html](http://www.hopkinsmedicine.org/som/students/academics/GradCourses.html)

ME 100.709 Macromolecular Structure and Analysis  
ME 100.710 Biochemical and Biophysical Principles  
**ME 260.709 Molecular Biology and Genomics**  
ME 260.708 Genetics  
**ME 110.728 Cell Structure and Dynamics**  
ME 330.709 Organic Mechanisms in Biology  
ME 360.728 Pathways and Regulations  
ME 800.707 Computational Biology and Bioinformatics

Students who take the above School of Medicine courses must also take **Core Research Literature (Core Discussion) 120.852** for Pass/Fail. These courses are taken in the second year. The courses listed above must be passed with a grade of B or better. Students not meeting that standard for the two REQUIRED courses (ME 260.709 and ME 110.728) must repeat that course and pass with an A or B. Students not meeting that standard for the third course they chose to take must repeat that course or a fourth course of their choice and pass with an A or B.

PhD students must also take a course in **statistics**. The recommended course is 140.615 Statistics for Laboratory Scientists I, although other courses may be substituted after consultation with your advisor. Alternative courses include: 140.611/612 (Statistical Reasoning in Public Health 1 & 2) and 140.621/622 (Statistical Methods in Public Health 1 & 2.) The statistics course(s) generally will be taken in the second year.

All Departmental students must register for and attend Seminars in **Molecular Microbiology and Immunology (260.822)** and **Research Forum in Molecular Microbiology and Immunology (260.821)** in **each term**. These courses are graded Pass/Fail.

PhD students are strongly advised to take at least one departmental advanced course during each of the third and fourth terms of their first year. The specific courses taken should be chosen after discussion between the student and his/her advisor. Generally, these courses will include at least one in the area in which the student expects to conduct his/her thesis research.

The School requires PhD students to complete **Research Ethics (550.860, 2nd term)** or **Research Ethics and Integrity (306.665, 3rd term)** and **Public Health Perspectives on Doctoral Research (550.865, 1st and 2nd terms)**. These courses are offered for 1 credit each and are usually taken during the **second** year. Note: Under certain circumstances, Public Health Perspectives can be waived by the following students: 1. Students with an MPH degree from a domestic institution within the last ten years 2. Students enrolled in a professional MHS program or in the DrPH program, 3. Students who have taken graduate-level courses in the five CEPH core areas that are biostatistics, epidemiology, social and behavioral sciences, environmental health sciences, and health systems administration. Waivers to this course can be obtained from the instructor, *and need to be approved early in the student's PhD studies*.

The School also requires Ph.D. students to complete a minimum of 18 credits in formal courses outside his/her own department with no fewer than nine of these credits taken in the Bloomberg School of Public Health. All 18 credits must be taken for grade (Pass/Fail is not acceptable). Credits earned for Molecular Biology and Genomics, Cell Structure and Dynamics, the third choice of the BCMB program courses, and Current Research Literature, count toward the required credits outside of MMI. Credits for Research Ethics and Public Health Perspectives on Doctoral Research are counted as separate School Requirements and are not included in the 18-credit requirement.

Students who are supported on training grants shared with other departments in the schools of Public Health or Medicine may be required to take additional courses. Details are available from the departmental Student Coordinator.

Second year and later PhD students should register for a total of 22 credits per term, including classroom courses (if any), 1 credit for Research Forum, 1 credit for Seminar, and Thesis Research (260.820). PhD students must also register for summer term: 12 credits thesis research plus 4 credits special studies for a total of 16 credits.

**Academic Performance and Academic Probation.** Doctoral students are required to maintain a 3.0 grade point average and, as noted above, complete required courses with a grade of B or better. Students who do not comply with these and other academic requirements may be placed on Academic Probation by the Graduate Program Committee. Formal notification of Academic Probation generally will be accompanied by conditions that the student must fulfill in order to be returned to good academic standing. Students who fail to meet those conditions may be dismissed from the program.

### **PhD Comprehensive Written Examination**

The School requires a departmentally administered written comprehensive examination for students in doctoral degree programs. The comprehensive examination is intended to test competency in areas of study required by the student's home department. In MMI, the written comprehensive exam takes the form of a grant proposal written by the student on a topic selected in consultation with his/her MMI advisor. The student's written proposal is evaluated by a committee of three MMI faculty and also is defended orally. The proposal-format comprehensive examination should demonstrate his/her grasp of basic factual material necessary for Ph.D. level research in molecular microbiology and immunology and ability to integrate the information obtained in the several disciplines of departmental interest. The examination also tests each student's ability to identify important scientific problems and to formulate hypotheses and plausible experimental approaches to testing those hypotheses.

**Summary of the Comprehensive Examination process** (A timetable indicating deadline dates for completion of each element of the examination is presented below).

- Each student selects a general area for the comprehensive examination proposal from a list prepared by the Graduate Program Committee (available from the Student Coordinator). A specific topic in that general area is then chosen in consultation with the student's academic advisor.

- A letter stating the specific topic and the experimental system (usually a microorganism) to be used in the proposal, countersigned by the academic advisor, is provided to the Student Coordinator. The specific topic may not be similar to that used in the grant writing course, the student's likely thesis topic, nor a topic used by any student for the comprehensive examination in the previous year. (A list of previous topics is available from the Student Coordinator.)

- The GPC will appoint a proposal review committee for each student, consisting of the academic advisor and two other faculty members that represent fields of departmental research expertise both inside and outside the chosen area.

- Each student must furnish to his/her advisor a document of about one page stating the proposal's hypothesis and specific aims. The student's proposal review committee, *via* the advisor, will communicate the suitability of hypothesis and specific aims to the student within one week. If necessary, the advisor will assist the student in revision of hypothesis and aims.

- Four copies of the final written proposal are distributed, one copy to the Student Coordinator and one copy to each committee member

- An oral exam is conducted. The student must arrange the date and time of the oral examination. The student has an additional two weeks after the oral exam to submit corrections required by the committee.

## MMI Ph.D. Comprehensive Examination Timetable

Steps	Dates
General topics posted	3/15/2010
Letter stating specific topic due to Student Coordinator	4/15/2010
Proposal Review Committee appointed	4/19/2010
Hypothesis and Specific Aims (one page) due	4/26/2010
Committee response to student	5/10/2010
Final proposal due	6/24/2010
Oral examinations completed	7/02/2010

**Committee composition** Committees are appointed by GPC. Generally, the head of the committee will be the student's academic advisor. The other two members of the committee will be full-time faculty with primary appointments in MMI.

**Hypothesis selection.** The following guidelines should be used in formulating the hypothesis. Lists of earlier year's hypothesis are available from the Student Coordinator.

- The hypothesis may be relevant to the research interests of the student, but should NOT be closely related to the student's prior rotation projects, likely thesis research topic if known, or topics used for proposals written for courses.
- The hypothesis should be amenable to formulation of specific aims which are testable with existing methodology and technology.
- Because proposals that recapitulate published work are not acceptable, the hypothesis should be selected from areas in which important information remains to be found.

**Written Proposal.** The finished proposal should be similar in format to a NIH research grant proposal, except that administrative pages, biographical sketches, experimental subjects sections and budgets should not be included. The total length of the proposal (Specific Aims through Research Design and Methods) should be 10 pages or less, Arial or Palatino, 11pt. font, single spaced. Figures are included in the page limit. The required sections of the proposal and suggested lengths are:

- Title page, including broad area chosen, specific topic, and the title of the student's 3rd term grant writing course topic.
- Specific Aims (0.5 - 1 page)
- Background and Significance (4 - 8 pages)
- Research Design and Methods (2 - 4 pages)
- Literature Cited (no limit)

**Scoring of Proposals.** Proposals will be read by all members of the proposal review committee prior to the oral defense of the proposal. Proposals will be scored by the committee members according to the following criteria:

**30 PTS HYPOTHESIS AND SPECIFIC AIMS**

- Summarize important issues in a paragraph
- Clearly state hypothesis
- State and justify specific aims in the context of the hypothesis

**40 PTS BACKGROUND AND SIGNIFICANCE**

- Critical review of the literature and current state of knowledge
- Identification of gaps in current knowledge
- Definition of issues to be addressed by the proposal
- Statement of significance of the issues addressed

**30 PTS RESEARCH DESIGN AND FEASIBILITY**

- Clear explanation of rationale and experimental design
- Justification of feasibility of proposed experiments
- Controls must be included and justified
- Statistics (if appropriate) must be presented
- Pitfalls and alternate approaches should be discussed.

**Oral defense.** Each student will be required to defend his/her proposal before his/her proposal committee. The defense should take place within two weeks of the due date of the proposal. The defense will be one to two hours long. The oral examination may address topics outside the area of the proposal to assess the student's breadth of understanding of material presented in required coursework, departmental seminars, and research forum.

**Scoring of oral defense.** After the defense, the committee will meet in to assign a defense score. Scoring will be according to the following scale.

20 PTS. 7-minute summary delineating hypothesis, significance and approach.

50 PTS Discussion of questions posed by committee specific to proposal, including

1. Demonstration of knowledge of concepts and terms used in proposal
2. Explanation of why this topic was honed from subject matter
3. Demonstration of understanding of experimental design and what it tests

30 PTS..Discussion of questions related to proposal but extending beyond immediate subject areas to other fields in microbiology and immunology.

**Pass/Fail criteria.** A score of 75% of the possible points must be achieved on each section of the both the written proposal and oral defense. Students receiving fewer than 75% of the possible points on three or more sections of the written proposal and/or oral defense will have failed the examination. Students receiving fewer than 75% on one or two sections will be allowed to rewrite/retake those sections. If a score of 75% is not obtained after rewriting/retaking the relevant sections, the student will have failed the examination.

Students failing the examination on their first attempt will be permitted to retake the examination in its entirety a second time, usually the following year. If a student has not passed after two attempts, he/she may be dismissed from the PhD program

*Discussions with others.* To obtain faculty feedback on progress made during the early stages of their work (particularly in identifying the specific problems to be addressed by their proposal), students are encouraged to speak frequently with their academic advisor. Note that it is the responsibility of the student to define specific hypotheses and experimental approaches; however, advisors may help students develop a focus and avoid blind alleys and repetitions of work already published, and may comment on the appropriateness of technology being considered. Students are permitted to speak to each other, more advanced students, and postdoctoral fellows about the details of their proposal, but the written proposal must be the student's own work. The JHSPH policy pertaining to plagiarism will be followed.

**Grant Writing Course.** To assist students in both the mechanical and scientific aspects of proposal preparation, a course in Grant Writing (260.625, 2 credits) is offered 3rd term.

## Scoring Form - Ph.D. Comprehensive Exam Research Proposal

Student: \_\_\_\_\_

Examiner:

Date:

Part A: Written Proposal

Comments/suggestions

Hypothesis and Specific Aims /30 pts  
(10 pts) Summarize important issues in a paragraph  
(10 pts) Clearly state hypothesis  
(10 pts) State and justify specific aims

Background and Significance /40 pts  
(10 pts) Identification of gaps in current knowledge  
(10 pts) Definition of issues to be addressed by the proposal  
(10 pts) Statement of significance of the issues addressed  
(10 pts) Critical review of the literature and state of knowledge in the field

Research Design and Feasibility /30 pts  
(6 pts) Clear explanation of rationale and experimental design  
(6 pts) Justification of feasibility of proposed experiments  
(6 pts) Controls must be included and justified  
(6 pts) Statistics (if appropriate) must be presented  
(6 pts) Pitfalls and alternate approaches should be discussed

Total /100 pts

Part B: Oral Defense

Comments/suggestions

7-minute summary /20 pts

Questions specific to proposal /50 pts

Questions related to but outside proposal /30 pts

Total /100 pts

**Please return to Student Coordinator in room E5008**

## **Preliminary Oral Examination for Doctoral Students**

The purpose of this examination, required and administered by the University's Graduate Board for PhD candidates, is to determine whether the student has the ability and knowledge to undertake thesis research. It is taken after the student has fulfilled all departmental requirements including the comprehensive examination. The Preliminary Oral Examination must be taken within 24 months of matriculation. Examiners will be concerned with the student's reasoning ability; depth and breadth of knowledge; and ability to develop and conduct research leading to a completed thesis or dissertation.

Students may prepare a written thesis research proposal to serve as a framework for the examination. However, a written proposal or a defined thesis project is not required for the examination **nor will the examination be confined to topics related to a proposal**. If a proposal is written it should describe the student's anticipated thesis research, including enough background information to put the proposed research in context, a statement of the objectives of the research, and an outline of the experimental approach to be used. Preliminary data collected by the student also can be included. The proposal should be concise (5-10 pages). As noted above, the examination is not intended to be a defense of a specific proposal, and may range widely over unrelated topics. Also, a proposal does not obligate the student to conduct the research described.

Examining committee members and alternates are selected by the student and his/her advisor in accordance with rules determined by the university. Current regulations and examining committee appointment forms can be obtained from the Student Coordinator or the Registrar's office.

## **Thesis/Dissertation Preparation**

Details on the format of the written dissertation (e.g., quality of paper, margins, illustrations, etc.) are available from the Registrar's office and at <http://library.jhu.edu/services/cbo/guidelines.html>

## **Final Seminar Presentation**

At the conclusion of their thesis/dissertation research, students are required to present their work at a formal seminar that is advertised throughout the University. The final doctoral seminar is usually scheduled in conjunction with the thesis defense described below.

## **Final Oral Examination for Doctoral Candidates (Thesis defense)**

The examination is a defense of the dissertation. Details on the conduct of the examination are available from the Registrar's office and online [https://my.jhsph.edu/Resources/PoliciesProcedures/ppm/PolicyProcedureMemoranda/Academic\\_Programs\\_03\\_Doctor\\_Of\\_Philosophy\\_Degree.pdf](https://my.jhsph.edu/Resources/PoliciesProcedures/ppm/PolicyProcedureMemoranda/Academic_Programs_03_Doctor_Of_Philosophy_Degree.pdf)

## **Time Limitations**

University policy specifies that not more than seven calendar years may elapse between the date of matriculation and fulfillment of all requirements for the doctoral degree programs. Students needing an extension of the time limitation in their degree programs must obtain the approval of the Graduate Program Committee and the School's Committee on Academic Standards.

## Miscellaneous program policies

**Criteria for dismissal from the Doctoral Program.** Students may be dismissed from the MMI Doctoral program for reasons that include (but are not limited to) failure to satisfy conditions specified for removal from academic probation, failure to maintain an adequate GPA, failure to pass required courses with a grade of B or better (see above for details), failure of the Departmental Comprehensive Examination or Preliminary Oral Examination, failure to make satisfactory progress in thesis research, violations of academic or professional ethics, and failure to adhere to School time limitations.

**Department Retreat.** In the Fall of each academic year, the MMI faculty and students attend a 2 day retreat at a location away from campus. The retreat is held over a weekend and includes faculty presentations and student posters on research currently be conducted in the department. The retreat ends with a key note talk from an investigator outside of MMI. The retreat provides students with an important opportunity to meet faculty and discuss possible rotation and thesis projects. The retreat also provides students with the chance to meet faculty and students and learn more about research being conducted in the department. Attending the retreat, including talks and poster sessions is mandatory for PhD and ScM students and optional for MHS students. The retreat is free for students. Costs are paid by the Department.

**Vacation/Holiday Policy** Graduate student holiday and vacation schedules traditionally have been flexible and determined by individual laboratory policy. Guidelines which reflect the department's general expectations are outlined below. These guidelines are not intended to eliminate flexibility in the scheduling of holidays and vacation, and do not replace any conditions that might be imposed by fellowships/funding agencies. These guidelines also do not restrict legitimate academic or research activities conducted off campus, such as attendance at scientific meetings and field work. Masters students are generally entitled to the following holidays and vacation time:

University holidays

Spring break

The period between last day of 2nd term and the first day of winter intersession

For Sc.M. students, a two-week vacation in the second year scheduled by arrangement with the advisor.

Graduate students generally are expected to be present during winter intersession and summer term or as required by their experimental protocols.

**Grievances.** Students who believe that they have legitimate grievances with their advisor, other faculty, or other students are encouraged to discuss the problems with their advisor (if appropriate), the Graduate Program Officer, the Chair of the GPC, or the Chair of the department. Advice also can be sought from any Departmental faculty member. Students who wish to pursue grievances at the school level should see [http://www.jhsph.edu/schoolpolicies/policy\\_student\\_grievance\\_procedure.html](http://www.jhsph.edu/schoolpolicies/policy_student_grievance_procedure.html).

**Animal experiments and protocols.** Any student who participates in animal experiments must be added to the appropriate animal protocol before beginning work. Changes to animal protocols (including addition of personnel) are the responsibility of the Principle Investigator of the protocol. Students also must complete online animal research training and must enroll in the Animal Exposure Surveillance Program prior to beginning work. If your thesis or rotation project involves animals, please discuss these matters with your advisor.

**SUMMARY OF REQUIREMENTS FOR DEGREE CANDIDATES IN THE  
DEPARTMENT OF MOLECULAR MICROBIOLOGY AND IMMUNOLOGY**

The chart below lists the combined School and Departmental degree requirements:

<b>REQUIREMENT</b>	<b>DEGREE PROGRAM</b>		
	<b>PhD</b>	<b>ScM</b>	<b>MHS</b>
Comprehensive written exam	+	+	None
Preliminary orals	+	None	None
Dissertation/thesis/essay	+	+	+
Final orals	+	None	None
Seminar presentations	+	+	+

## ADDITIONAL DEPARTMENTAL AND SCHOOL INFORMATION

**Additional Course Information.** Many university-wide courses can be used to fulfill specific requirements. Consult the catalogs of the various university divisions available for viewing in the Office of the Registrar.

1. Bloomberg School of Public Health catalog -- see interdepartmental programs.
2. School of Medicine catalog.
3. School of Arts and Sciences (Homewood Campus) catalog.

**Departmental Seminars.** A weekly Departmental Seminar is held at 12:00 pm on Thursdays during the academic year and **all students are required to attend.** Research Forum is held at 12:00 pm on Mondays and **all students are required to attend.**

Students are encouraged to participate in Journal Clubs in Immunology, Molecular Parasitology, Programmed Cell Death, Vector Biology and Virology, which are scheduled at various times throughout the week.

**Administrative Personnel.** The departmental offices are located in Rooms E5132, E5001, E5005, E5006 and E5008. Twelve staff members serve the needs of the faculty and students.

**Theresa Daniel** (Room E5132) serves as Department Administrator. She directs all aspects of finances, budgets, permanent equipment, and space requirements for the department and has overall responsibility for the administration of the department and the Malaria Institute. This includes the pre- and post-award grant administration, HR/payroll, equipment and facilities.

**Gail O'Connor** (Room E5008) serves as Sr. Academic Program Coordinator. She handles all aspects of students' academic careers, tuition, medical and dental insurance and admissions. She attends meetings of several departmental committees concerned with students and academic programs.

**Nancy Lance** (Room E5008) serves as Sr. Human Resources Coordinator. She handles all HR/payroll related issues for faculty, staff, post-docs and students.

**Thom Hitzelberger** (Room E5132) serves as Budget Specialist and is responsible for reviewing the accuracy of invoices and preparing fiscal documents required to pay vendors for goods and services. He also catalogs and is responsible for the purchasing of departmental equipment, and is the main contact for reserving the MMI Fifth Floor Conference Room. He handles the mail distribution for the department, and distributes the salary and stipend checks to members of the department. In addition, he serves as "key operator" for the departmental photocopier, printers, and fax machine and also reconciles monthly budget statements.

**Tracy Russo** (Room E5132) serves as Sr. Research Service Analyst. She is responsible for the development and preparation of research grants and contracts. She provides support and guidance to faculty who are submitting applications or renewals for grants and is responsible for updating the faculty's "other support" for NIH grant applications. Tracy also reconciles monthly budget statements.

**Meredith Piplani** (Room E5006) serves as Sr. Financial Analyst for the Malaria Institute. She is responsible for monitoring the Malaria Institute finances. She provides support and guidance to faculty who are submitting malaria pilot applications. Meredith also reconciles monthly budget statements.

**Debbie Lambert (Room E5001)** serves as Research Service Analyst. She is responsible for the development and preparation of research grants and contracts. She provides support and guidance to faculty

who are submitting applications or renewals for grants and is responsible for updating the faculty's "other support" for NIH grant applications. Debbie also reconciles monthly budget statements.

**Joseph Troilo** (Room E5001) serves as Research Service Analyst. He is responsible for the development and preparation of research grants and contracts for the faculty of the Malaria Institute. He provides support and guidance to faculty who are submitting applications or renewals for grants and is responsible for updating the faculty's "other support" for NIH grant applications. Joe also reconciles monthly budget statements.

**Konstantin Milman** (Room E5005) serves as Web/Systems Specialist for the Department. He is responsible for the maintenance of two web sites (MMI & MRI). He provides PC/MAC support for faculty, staff and students.

**Leonid Shats** (Room W5713) has oversight of Departmental equipment. Mr Shats provides instruction in use of the Departmental microscopes, performs some routine maintenance, and repairs or arranges repairs of Departmental equipment. Repair requests are submitted online through the MMI web site.

**Chad Barnwell** (Room E5006) serves as Budget Specialist and is responsible for reviewing the accuracy of invoices and preparing fiscal documents required to pay vendors for goods and services for the Malaria Institute. Chad also reconciles monthly budget statements.

**Ellen Dicks** (Room E5132) serves as Administrative Coordinator to the Department Chair and her editorial assistant for the *Journal of Virology*. She is responsible for maintaining Dr. Griffin's daily schedule, arranging her appointments, meetings and travel.

**Computer Accounts.** See "Information Systems" in the School's *Student Handbook*. All full-time students will be issued an email account at orientation.

**Financial Aid.** Masters students are not generally supported by Departmental funds. Sc.M. students are eligible for a second-year scholarship from the School after all Departmental requirements except the thesis are fulfilled. This scholarship reduces tuition by 75%. Contact the Student Coordinator for details.

**Student/Faculty Forum.** Informal meetings are held periodically to facilitate communication between students and faculty. Its purpose is primarily to exchange views and to initiate policy changes. A topic relevant to students is discussed; for example, required courses, finding a post-doc. The Graduate Officer welcomes suggestions for discussion topics. This forum also provides an opportunity to inquire about degree requirements and for meeting informally with faculty and students. Refreshments are served.

**MMI Fifth Floor Library.** The Department of Molecular Microbiology and Immunology houses the MMI Fifth Floor Library in Room E5133. It is available for individual study sessions and quiet reading. A computer equipped with a CD Rom is available for library searches. Current journals of interest to the Department, bound copies of Departmental doctoral and master's theses, and bound volumes of Departmental publications are available for perusal. **Materials are not to be removed from this room.**

**MMI Fifth Floor Conference Room.** This room is available for journal club meetings, student or faculty committee meetings, special seminars, and group study sessions. There is a calendar available on the door to reserve the conference room.

**MMI Fifth Floor Student Computer Rooms.** These rooms (E5003 and E5007) are available to all MMI students only. Seven computers, 2 scanners, and 2 laser printers are available for your use. You must swipe

your ID card for access to room E5007.

**Departmental Mailboxes.** All students in the Department are issued mail-slots located in Room E5131. These slots are used for telephone messages, Departmental and School correspondence and announcements, as well as for any mail addressed to students in care of the Department. **It is important for students to check their mailboxes frequently.** Mail is distributed twice a day, once in the morning and once in the afternoon.

**Student Lockers.** Student lockers are available and can be reserved during orientation each August. For more information, contact the Student Coordinator.

**School Mailboxes.** Since the Department provides mail-slots for its students, no School mailboxes will be issued.

**Photocopying and Faxing.** To use the Departmental photocopier in Room E5133, students must have their badge activated. Please see Thom Hitzelberger to have your badge activated. Only work authorized by the Department, e.g., course-related copying, may be charged.

The Departmental fax machine is located in Room E5133; the number is 410-955-0105. This fax is not free. You may pay cash or charge it to your advisor's budget number with their permission.

**Departmental web site** (<http://jhmmi.jhsph.edu/>). A great deal of information, many forms, and interactive functions such as repair requests and equipment scheduling are available on the Departmental web site. Some functions require login with your e-mail user name and password.

**STANDING COMMITTEES FOR 2009-2010**  
**DEPARTMENT OF MOLECULAR MICROBIOLOGY AND IMMUNOLOGY**

<p><b>COMMITTEE ON APPOINTMENTS AND PROMOTIONS</b>  Diane Griffin, Chair  George Dimopoulos  Gregory Glass  Marie Hardwick  Marcelo Jacobs-Lorena  Gary Ketner  Nirbhay Kumar  Joseph Margolick  Douglas Norris  Richard Markham  Andrew Pekosz  Fernando Pineda  Noel Rose  Alan Scott  Keerti Shah  Clive Shiff  David Sullivan  Milan Trpis  Xiao-Fang Yu  Fidel Zavala  Ying Zhang</p>	<p><b>COMMITTEE ON ADMISSIONS AND FINANCIAL SUPPORT</b>  George Dimopoulos, Chair  Jay Bream  Elena Levitskaya  Richard Markham  Andrew Pekosz  Jason Rasgon</p>	<p><b>COMMITTEE ON GRADUATE PROGRAMS</b>  Gary Ketner, Chair  Greg Glass  Marcelo Jacobs-Lorena  Sabra Klein  David Sullivan  Ying Zhang  George Dimopoulos (ex officio)</p>
<p><b>MHS SUBCOMMITTEE</b>  Sabra Klein, Chair  Douglas Norris  Clive Shiff  David Sullivan</p>	<p><b>COMMITTEE ON FACILITIES</b>  Alan Scott, Chair  Isabelle Coppens  Anne Jedlicka  Debbie Bradley (ex officio)</p>	<p><b>MPH ASSOCIATE DIRECTOR</b>  Gary Ketner</p>
<p><b>EXECUTIVE ASSIGNMENTS</b>  Graduate Officer:  Human Safety Officer: Richard Markham  Research Forum Coordinator: Jason Rasgon  Seminar Coordinator: George Dimopoulos  Computer Room Maintenance: Konstantin Milman  Ombudsman: Dr. Alan Scott</p>	<p><b>Graduate Student Association</b>  President: Dionne Robinson  Faculty Liaison: Ben Blumberg  Research Forum: Kyle McLean    Research Seminar: Kyle McLean  Student Assembly Representative: Janet Tai (will continue 2009-2010)  Diego Espinosa (will begin 07/01/2010)  Social Coordinators: Gillian Legault and Samantha Baer  Newsletter: Kyle McLean, Wendy Lin and Eva Tse  Recruitment: Eileen Geoghegan, Kyle McLean, Erin Lalime, Andrea Radtke and Stefanie Trop  Ombudsman: Dr. Alan Scott</p>	