

## **Qualifying Exam**

### **I. Overview of Requirements**

The Immunology Program qualifying examination is in two parts: Part I, a written examination in several areas of immunology, and Part II, a Dissertation Proposal Defense, which details the research to be done by the student and is orally defended before a faculty committee of the student's own choosing.

Completion of Part I should be done after Spring quarter of the first year. Completion of Part II should be done by the end of Autumn quarter, second year.

#### **IIa. Qualifying Examination, Written, Part I**

The purpose of Part I of the Qualifying Exam is to ensure that each student has a broad knowledge of many areas of immunology. The exam is open book and must be completed within 72 hours. For this academic year, it is **Wednesday-Friday, July 6-8, 2005, due back to the Immunology Program Office on Saturday, July 9 at 9:00 am via email attachment.**

The administrator will contact all five Predoctoral Committee members for 1 question for the written exam. Each member of the Predoctoral Committee will prepare one question for the exam. Answers should require synthesis of information from a number of areas and may not be "right or wrong". Students are required to answer all questions. The student may not show the questions to, or discuss them with, any other individual. The student will be instructed to write "No aid given or received" and sign at the end of the last question to signify compliance with Stanford University's Honor code and these instructions.

Responses must be limited to 2 pages double-spaced, excluding references (12 point font). Grades will be based on content, organization, and clarity. References must be included. If the information came from a course lecture, cite the lecturer. If the information is from the literature, cite the literature.

Each Predoctoral Committee member will grade responses to his/her question. Grades are pass/fail only, but faculty are encouraged to provide extensive written feedback for the students. The Predoctoral Committee Director will inform the first year students of their qualifying exam grades. Students will also receive guidelines for Part II in the qualifying examination process.

#### **IIb. Qualifying Examination, Dissertation Proposal Defense Orals, Part II**

The Dissertation Proposal Defense Orals, Part II, is a requirement to be met before the end of Autumn Quarter of your second year (December 17). It is the responsibility of the student to schedule his/her committee date. The topic is the student's planned thesis research, and it is to be presented to a committee of the student's choosing. The written

version of your orals presentation should be given to your committee two weeks before your orals defense date. The student's preceptor may introduce the student at the beginning of the oral presentation, but may not be present for the remainder of the oral examination. If a student should miss the December 17th deadline, he/she must petition the Director for extension. If the student does not receive timely written permission for an extension, his/her registration will be put on hold and a stipend check will not be issued. Exceptions are allowed for combined M.D./Ph.D. students.

*Failure to complete the Qualifying examination process by September of the third year will be considered grounds for dismissal from the Program.*

The student must have all members of his/her Dissertation Proposal Defense Orals Committee read and grade the proposal (a letter grade). The Program Administrator will help the student choose a chair, who is either a Predoctoral Committee member, or one who may be designated as a representative of the Predoctoral Committee. The composition of the Dissertation Proposal Defense Orals Committee may be of the student's choosing, and should include at least three or four Faculty members, two of whom are from the Immunology Program Faculty. One of the two Immunology Program Faculty may be the student's advisor. The student is expected to meet each member of the orals committee in advance (e.g., 1-2 months before the exam), and the committee members shall indicate to the student in some detail those areas of immunology in which he or she can anticipate background questions. The student is also encouraged to talk with each of the committee members in advance of the examination (after delivery of the written version of the orals and within two weeks in advance of the exam) in order that both shall be clear about the scope of the examination.

Members of the Dissertation Thesis Proposal Committee may or may not be the same as the members of the student's Dissertation Reading Committee. The Dissertation Reading Committee is the Committee who will ultimately read and approve the student's Ph.D. thesis.

The student will follow the instructions for an NIH research grant in terms of format, except that he/she may have only limited preliminary results. The written version of the orals should be 20 pages double-spaced, instead of the standard 20 page single-spaced NIH (RO1, PHS form 398) proposal. All tables, graphs, figures, diagrams, and charts must be included in the 20 page limit. The lettering system (a. hypothesis, b. specific aims, etc., see below) should be followed as per NIH grant formatting. The thesis proposal should be prepared directly on PHS form 398, which is available on the NIH website. Failure to follow the NIH format, including exceeding font size, margins, or page limits may result in the Committee's decision to have the student rewrite the thesis before giving a passing grade. **It is strongly recommended that the student work closely with the Committee, particularly the Thesis Adviser, in preparing a hypothesis-driven thesis proposal. Students should review successful NIH grants prepared by Faculty members as a template. These are available through the Immunology Program Administrator.** Please see specific formatting instructions for the written version of the orals below:

- **Hypothesis.** The intent of the Dissertation Proposal Defense Orals exam is to ensure that the student has selected a good thesis project, which is based on a sound hypothesis. The hypothesis answers the questions: what is it that you intend to do? And why is the work important? The single, biggest mistake made in grant applications and thesis proposals is failure to succinctly state a testable hypothesis.
- **Specific Aims.** List the broad, long-term objectives and what the specific research proposed is intended to accomplish.
- **Background and Significance.** What is the current scientific background of the thesis project? The existing body of knowledge in the relevant areas of the thesis project should be critically evaluated. What gaps are there in this body of knowledge? Where does your thesis project fall? State concisely the importance of the research described by relating the specific aims to the broad long-term objectives.
- **Preliminary Studies.** In the preliminary studies section, the student should include any preliminary studies that will help establish the appropriateness and feasibility of the thesis project. Because of the relatively short time period between Part I and Part II of the Qualifying exams, the Predoctoral Committee recognizes that enough preliminary data may not be as readily available. **The student is expected to make use of the faculty advisor's preliminary results if he/she has not already obtained a significant amount of preliminary results.** Preliminary data is limited to 3 pages total, including all graphs, tables, and figures. In light of the early deadline for Part II, a student's thesis project may change several months after the dissertation proposal is defended. If such a change occurs, the student should inform his/her Dissertation Proposal Committee by submitting a short, three-page written report describing the necessary changes. If no changes are necessary, then the student should proceed in a normal fashion, e.g., scheduling the annual dissertation committee meeting a year later.
- **Research Design and Methods.** Describe the research design and procedures that will be used to accomplish the specific aims of the projects. Include how the data will be collected, analyzed, and interpreted. Describe any new methodology and its advantage over existing methodologies. The questions that will be asked are: what are the potential difficulties and limitations? What alternative approaches exist to achieve the aims of the thesis project? What is the tentative timetable of the project? Will the student be able to submit a Ph.D. thesis in a reasonable amount of time?
- **Human Subjects.** Provide sufficient information for any human subjects studies.
- **Vertebrate Animals.** Provide sufficient information for any animal subject studies.
- **Literature Cited.** Literature citations should be listed at the end of the proposal. Each literature citation must include the title, names of all authors, book or journal, volume number, page numbers, and year of publication.

For the orals itself, a typical orals exam begins with a prepared presentation of the thesis proposal. Faculty will frequently interrupt with questions about the work, its interpretation, the methods, and background questions relevant to the proposal.

*After the Dissertation Proposal Defense Orals Exam:*

Any member of the Dissertation Proposal Committee may provide a written evaluation (paragraph) and grade of the dissertation proposal. He/she will give a letter grade and a review *a la* NIH describing the strengths and weakness of the proposal. The Thesis Committee Chair is required to provide a short written evaluation to accompany the exam results. A student who receives a grade lower than B may be asked to rewrite the dissertation proposal. If the Dissertation Proposal Committee does not give a passing grade to the student's rewritten version, then the Predoctoral Committee will meet to consider whether extenuating circumstances warrant permitting the student to be examined a second time. If so, the Predoctoral Committee will permit a second examination, or if he or she is given such an opportunity and fails the second examination, he or she will be dismissed from the Program. The dismissal shall be made in writing.

After successful completion of the Qualifying Examination, Parts I and II, the student may apply for admission to Ph.D. candidacy. Admission to Candidacy means that the student has completed the Qualifying Examination and most of the course requirements of the Immunology Program and is now ready to begin thesis research leading to a dissertation and University oral exam. The Application for Candidacy for Doctoral Degree form must be filled out and submitted to the Program Administrator. The schedule will be adjusted to fit the needs of MSTP and MD/PhD students, or students who transfer from another program.