

## Ph.D. PROGRAM IN ORAL BIOLOGY

### Guidelines for the Ph.D. Preliminary (Qualifying) Examination

Revised 4/2009

The Preliminary (Qualifying) Examination is composed of two phases, the written (A) and the oral (B). There are required **Milestones** for different steps of the examination which all students must follow. The time-line is designed to take into account that the student has two opportunities to pass both the written and oral phase of the exam, and that the entire examination process must be finished before the student enters into the 3rd year of the program. If, due to unusual circumstances, the student anticipates that he/she cannot meet this deadline, he/she must request and must be granted an official deadline extension from the departmental Graduate Affairs Executive Committee.

#### Milestones for the Preliminary Examination:

1. In the spring semester of the 2<sup>nd</sup> year in the PhD program, students will register for 2 credit hours of Independent Study under the Preliminary Examination Director.

2. **By January 31:** Submit **two** prelim topics along with a brief write-up for each (not exceeding one page) describing background and key questions or hypotheses being addressed. These topics should be on scientific areas that would advance our understanding of the field of oral sciences; such as craniofacial and tooth development, salivary glands and saliva, TMJ, tooth supporting tissues (including bone), microbiology, immunology and microbial pathogenesis. The topics **should not** be similar to the student's own research or the student's PhD mentor's research. These topics should be in the form of a 1-page abstract and should include the scientific rationale for the proposal, hypothesis and overall approach.

3. **By February 7,** the Preliminary Examination Director will meet with the PhD executive committee to choose one of these topics, and assign the Preliminary Examination Advisor and examination committee for the student. The Examining Committee will be composed of 4-5 members; 3 or 4 from the Department and one or two from outside the Department. The student will work closely with the Preliminary Examination Advisor on the development of the proposals. The role of the Preliminary Examination Advisor is to discourage the student from writing a proposal that is too vague, completely unrealistic or scientifically unsound. The advisor will not be responsible for the generation of the main ideas upon which the proposal is based. Likewise, the advisor should not take any responsibility for final rewriting. The final product will be evaluated as at least minimally acceptable by the advisor, but reflects the student's ability and motivation to write the best possible proposal that is not a product of the advisor.

Upon selection of the preliminary examination topic, advisor and examination committee, the student will proceed with writing the Abstract to be submitted by February 28. The proposal should contain the major aspects of the Research Plan Section of the RO1 application (budget and supporting information should not be included). The proposal should, therefore, consist of four principal headings: (A) Specific Aims, (B) Background and Significance, (C) Preliminary Studies/Progress Report (if any), (D) Research Design and Methods. References should be limited to relevant and current literature. Key references (five or less) should be indicated in the bibliography.

4. **By February 28:** Submit Abstract and Specific Aims for the proposal. The Abstract should include the scientific rationale for the proposal, long-term objectives, hypothesis and specific aims addressing the specific research proposed. After approval by the Prelim Advisor, the Abstract will be submitted to the Preliminary Examination Director who will submit them to the student's Examining Committee for evaluation. This Committee will have the final decision on the acceptability of the aims of the

proposal. The Examining Committee should complete the evaluation of the Abstract and Specific Aims within 1 week of submission by March 7. If the Committee does not approve the Abstract and Specific Aims, then the student will be asked to re-write it within approximately one week and the modified version will be re-submitted to the Committee for re-evaluation. After the Examining Committee has approved the abstract, the student will proceed with writing the full-length proposal with assistance from his/her Preliminary Examination Advisor.

**5. By May 1:** Submit Full-length written proposal (detailed description follows below).

The Examining Committee members will evaluate the written proposal. Each member will assign a grade of Acceptable or Unacceptable for each section (below) and a overall composite grade (A/U) based on the following criteria:

- A. Workable hypothesis
- B. Feasibility of experimental design
- C. Adequacy of methods
- D. Quality and clarity of write-up
- E. Basic understanding of the proposed area of research

The Examining Committee members will have two weeks to grade the proposal (by May 15). They will submit to the Preliminary Examination Director: 1) grades for each section and composite grade (A/U) and 2) a short written critique. If the student has successfully passed the evaluation of the written proposal, the oral examination will be scheduled as soon as possible (depending on the examination committee availability). Thus, the entire exam may be finished by the end of May.

If the proposal receives Unacceptable grade(s) from two or more examiners, the Examining Committee will hold a meeting to discuss the proposal and the decision will be made regarding passing or re-writing. If re-writing is necessary, the student will meet with the Preliminary Examination Advisor, who will have the written critiques of the proposal, to discuss the points of modification. For rewriting, a maximum of 1 (one) month will be allowed (submit the proposal by June 15th). Student must "pass" this part of the preliminary exam before oral examination; if "unacceptable" grade was assigned after the second written proposal, the student will be asked to leave the Graduate Program.

**6. Second half of May:** Oral Examination (second half of June, if re-writing of the proposal was necessary).

If not passed the first time, the oral exam may be repeated once within a one-month period of the first exam (second half of June, or second half of July if re-writing of the proposal was necessary).

**A. Written Phase of the Preliminary Examination** This must be an original proposal, conceived by the student, thus any topic that has been funded (or proposed) by the student's PhD advisor has to be excluded. Also, it is the intent that the proposal should not duplicate any proposal previously prepared by any faculty member. The written proposal should be in a NIH RO1-type format. NIH instructions for the completion of each section should be followed. An actual budget should not be prepared. The depth of the proposed studies should reflect 3-5 year time frame of the grant, but the number of pages for the Research Plan (sections a-d) should not exceed 25 pages (single-spaced), but can be shorter.

A. Specific Aims section should list the specific objectives of the study. This section will generally reflect the degree of sophistication the student has in focusing and formulating a study. The aims should reflect clear, focused goals that could be accomplished in a three to five-year study.

B. Background and Significance section should consist of 2 subcategories: 1) background and 2) significance. In the background (1) review and document the most significant previous work and describe the current status of research in this field. The review should be selective and thoughtful

rather than exhaustive; a critical review of the literature directly relevant to the problem. In the significance or rationale (2) present concisely the reasoning behind the proposed solution to the problem. Discuss the potential importance of the project, emphasizing any novel approaches that the study offers. Use this section to convince the readers of the innovativeness of the research as well as any potential, practical applications to oral biological problems. The clarity with which the student presents this is very important. It will show how effective he/she is in communicating ideas to others as well as in understanding the problem.

C. Preliminary Studies/Progress Report. If any, it should include any preliminary results and/or any other information pertinent to the proposal. The references to appropriate publications, abstracts, and manuscripts submitted for publication may be listed.

D. Research Design and Methods section should give details of the research plan. Include rationale and a description of the experiments: the methods, species of animals, and techniques to be used. Document with references where appropriate. Discuss anticipated results and the means by which they will be analyzed or interpreted. If clinical studies are involved, give details of responsibility for patient selection and care. Discuss specific problems that might be encountered (potential pitfalls), the limitations of the procedures proposed and alternate strategies. Point out any procedures that may be hazardous to personnel and special precautions that may have to be exercised.

## **B. Oral Phase of the Preliminary Examination**

Before the beginning of the questioning, the student will give a 10-minute overview or synopsis of the proposal (in the form of power point presentation).

The Examining Committee will conduct the oral examination. Other faculty in the Department of Oral Biology is encouraged to attend and actively participate in the exam and its evaluation. The final outcome, Pass, Fail or Remediation required, will, however, be determined by the Examining Committee members only and will be based on the majority vote.

The questioning will be designed to test the ability of the student to defend questionable aspects of the written proposal as well as answer some background questions in greater depth than would be possible in the written part.

The criteria for a passing grade are chiefly that the student understands the proposal in depth with sufficient demonstration that his/her basic knowledge is such that he/she can take rationale approaches to solving problems of an oral biological nature.

**Failure:** If a student fails this component of the preliminary exam, he/she may repeat it once within a one-month period (the second part of June, or second part of July, if re-writing of the proposal is necessary). The second oral exam will be conducted in the same manner as the first. If the second exam is not passed, the student will be asked to leave the Graduate Program.

**Remediation:** In the event the student demonstrates one or several deficiencies in the course of the oral examination, the Preliminary Examination Committee has the option to require the student to perform remedial work. This may include taking additional course work or tutorials.

Recommendations and the time frame will be communicated to the student in writing. The "pass" grade may be assigned to the student only after successful completion of the remedial work, to be determined by the examination committee.