Guidelines for the Preliminary Examination

Each student is required to take a Preliminary Examination (sometimes called "qualifying exam" or “PQE”) on or before March 31 of his or her second year of graduate work. The Preliminary Examination is a written and oral examination of a specific research proposal, which is typically written on the student's proposed dissertation topic. The purpose of the exam is to assess the student's preparation and ability to embark on an original scientific investigation. The goals of the exam are to demonstrate that the student is able: (1) to define a question in a particular area of research, (2) to review the literature pertinent to that question with an emphasis on what makes the proposed experiments interesting and important, (3) to formulate an experimental plan that would address and answer the question, and (4) to interpret possible experimental outcomes in a manner that indicates awareness of the limitations of the methods used. It should be stressed that preliminary data are not required for the Preliminary Examination. (Any relevant data may of course be included.) The student may discuss the aims and the proposal in depth with his/her advisor or other faculty members. The advisor may read and provide suggestions on drafts for the proposal, as long as the final document is the student's own work.

See below for detailed guidelines for the format and length of the Research Proposal. The student must deliver the research proposal to each of the Committee members and the Program Office at least 7 days prior to the Examination. If the proposal is late or too long, the Chair may request a postponement of the exam. The Examination is oral and will typically last about two hours.

The Research Proposal provides the focus of the Preliminary Exam, but students are also expected to demonstrate substantial knowledge and understanding in the field of the proposal and in scientific areas that relate to the proposal. Examiners may ask questions about actual or hypothetical results and their interpretation in order to probe the student's level of understanding.

The Preliminary Exam Committee

The Preliminary Exam Committee will be made up of three examiners. The student should select these examiners in consultation with the student's dissertation advisor. It is important for the student to obtain the Program Director's approval before the three proposed examiners are invited to join the committee. The Committee Chair and at least one other member of the committee must be affiliated with the Program in Neuroscience. These examiners may also serve subsequently on the Dissertation Advisory Committee. The Exam Committee Chair will serve as an examiner, oversee the administration of the exam, and be responsible for assuring that the student receives an oral summary of the outcome and evaluation at the end of the exam. The Chair will also be responsible for filing the Exam Report Form with the Neuroscience Program Office.

Approval of Exam Topic

Before writing the Research Proposal, the student should receive approval from the Exam Committee (and dissertation advisor) for the specific aims and overall direction of the proposal. This can be done by submitting to the Committee, generally by email, a one or two page description of the 2-4 specific experimental aims. This written description should be in the typical “Specific Aims” format of most NIH grant proposals, with a short introduction and a description of each aim. Committee members will either approve the aims or indicate appropriate changes in the aims or scope. If necessary, the student may arrange a meeting with the dissertation advisor and one or more examiners, to discuss the needed changes.
The Outcomes

The student will be asked to leave the room for the deliberations at the beginning and end of the exam. The Exam Committee will decide on one of two outcomes:

1. **Pass.** – This outcome indicates the Exam Committee’s opinion that the student is fully ready to initiate work on the proposed projects. In the written report, the Exam Committee will comment on the student’s strengths and weaknesses noted during the exam. At the end of the exam, it should be discussed whether the Exam Committee will serve as the Dissertation Advisory Committee. This is often the case, but the student is free to change the composition of the Committee with the approval of the Program Director. The Examining Committee should recommend the time frame for the first DAC meeting, which should not be later than 9 months after the Prelim Exam.

When giving a Pass grade, the Examining Committee may recommend work to correct minor deficiencies. This recommendation will be communicated to the advisor, who will supervise the student as appropriate. If the Committee feels that the problems are substantive enough to require re-review by the Committee, then the outcome of the exam should be “Special Committee Review” rather than “Pass”.

2. **Special Committee Review.** – This means that the student’s status will be reviewed within 3 months. The review will be performed by a special committee consisting of the members of the original Preliminary Exam committee, plus the Program Director or Associate Director. This outcome indicates substantive problems in the student’s written proposal, oral presentation, laboratory work on the project prior to the PQE, or coursework. However, these problems may be the usual sorts of problems that ultimately successful students sometimes experience at this stage, and this outcome should not be viewed as a failure. Instead, it is a mechanism for helping to ensure that all students embarking on a Ph.D. thesis have a strong chance of succeeding in a reasonable amount of time.

If this is the outcome of the exam, the Program Director will send the student a letter describing the goals and expectations for the coming months. This letter will be written in consultation with the committee Chair and the student’s Advisor. The letter may set goals relating to any of the following issues: the written proposal, the oral presentation, research activities, coursework, and professional conduct. The letter may request that the student repeat the exam; however, in some cases, this may not be indicated. Copies of the letter should be sent to the entire Special Committee.

The Special Committee Review meeting should focus on the issues described in the letter. The meeting may represent a “repeat” of the PQE. Alternatively, the meeting may take a different format. The format and goals of the meeting should be tailored to the student’s circumstances, but they should made clear to all participants in the letter.

After the Special Committee Review meeting, the Program Director will determine the student’s status in the program. This decision will be made in consultation with the student’s Advisor and the Associate Dean of Basic Graduate Studies, and it should be decided within 3 days of the meeting.
Proposal Guidelines

The written proposal should include the following sections (using these subheadings):

1. **Specific Aims – 1 page** – List succinctly the specific objectives of the proposed project. Two or three Specific Aims are suggested.

2. **Background – 6 to 7 pages** - Briefly sketch the background leading to the present application. Critically evaluate existing knowledge, and specifically identify the gaps that the project is intended to fill.

3. **Significance – less than 1 page** - Explain the importance of the problem that the proposed project addresses. Identify the gaps that the project is intended to fill. Explain how the proposed project will improve scientific knowledge or technical capability in one or more broad fields.

4. **Approach – 4 to 5 pages** - Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Describe how the data will be collected, analyzed, and interpreted. Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims. If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high-risk aspects of the proposed work. Preliminary data is optional. Any figures and legends should be included within this page limit.

5. **Bibliography** – There is no length limit, but the student is expected to have read all the papers cited in this section.

The total document length should be 13 pages or less, including any figures and legends (optional) and excluding References. Use an Arial, Helvetica, Palatino Linotype, or Georgia typeface and a font size of 11 points or larger. Use at least one-half inch margins. Figure legends may use a smaller type size. (Note that sections 1, 3, and 4 conform to the revised NIH guidelines for F31 applications. In a F31 application, section 2 would be shortened and folded into section 3.)