Qualifying Examination - Biochemistry Ph.D. Program

I. Purpose

The Qualifying Examination represents a final hurdle for admission to candidacy for the doctoral degree. Students will be expected to prepare an original research proposal, which is written as an NIH-style grant application. The student presents and defends the proposal orally and is examined by a committee of 3 faculty. The examination is designed to test whether the student is ready to plan and carry out independent research. The exam will also test the breadth of the student's preparation beyond the focus of the dissertation research. It is scheduled typically in the fourth long semester so that students will have completed their core courses and have spent considerable time in a research laboratory. The examiners will concentrate on the experimental and background aspects of the proposed research, but may also test general knowledge in all areas of biochemistry.

II. Format and Timing

The following schedule has been designed to restrict the time spent by the student in the generation of the proposal. This schedule will be adhered to closely (look at it as practice for meeting real grant deadlines).

1. Proposal Topics

Each student will prepare **abstracts** for **two** different research proposals. Each topic should represent an unresolved problem. One useful method for selecting a topic is to find an interesting paper in a recent journal, and then, as if it were your laboratory that published the paper, decide what to do next. The proposal should represent something on the order of a two-year project. The topic may be related to or outside the student's own area of research, but must not be the same as that to be conducted by the student for the dissertation project or any other project currently in progress in that laboratory. The two topics should be selected by the student, but you are permitted to discuss ideas with other students and faculty.

2. Abstracts

Abstracts are due no later 5 weeks before your qualifying exam date. Each abstract should state the problem and briefly describe the approach that will be used. The most relevant references should be included (typically 1 to 3 references), as well as a general description of the methods to be used. Each abstract typically fits on one page. Both abstracts should be emailed to the graduate adviser (dhoffman@mail.utexas.edu). Several faculty will review the abstracts, choose one, and select the examination committee. The committee's choice of topic will be communicated to the student **4 weeks** prior to your examination date. Exams will be scheduled between February and early April. Exams will usually be conducted on Wednesdays at 1 pm, with one or two students going each week.

3. Proposal

The student has **three** weeks to develop the written research proposal (the completed proposal is due **one** week prior to the exam). This document involves a detailed description of the background and logic behind the proposition, and the experiments proposed to address it. A good proposal will address the following questions: (a) What do you intend to do? (b) Why is this important? (c) What has already been done? (d) How are you going to attack the problem?

Proposals are usually hypothesis driven, with experiments designed to test the proposed hypothesis.

The format to be used is as follows. Use the NIH grant application "PHS398" form for the cover page (face page), summary page (form page 2) and biographical sketch page. Add continuation pages as needed. Don't bother with the budget pages and other pages. These forms can be downloaded in various formats from the web (Google finds it).

A. Cover Page (Form page 1), project description (form page 2) and Biographical Sketch page.

B. Proposal. Typically about 10 pages (but definitely no more than 15), including figures.

Specific Aims - State concisely (i.e. 1. I will ...) and realistically what you plan to accomplish. Remember, you are proposing a two-or three-year project. (Suggested length not to exceed one page)

Significance/Background - Present the background to the proposal, critically evaluating existing knowledge, and specifically identify gaps which this project is intended to fill. State the importance of the research described in this proposal by relating your specific aims to longer term goals. (Suggested length two to four pages)

Experimental Design and Methods - Discuss in detail the experimental design and the procedures to be used to accomplish the specific aims. Discuss how the data will be analyzed and interpreted. Discuss potential difficulties and limitations with your approach and suggest alternative approaches. Point out necessary controls. **Potential outcomes of the experiment should be presented and results described using hypothetical data.** These figures should be included under "Supplemental Material" and will not be counted against your page limitations. Your objective in this section is to convince the reviewer that you know what you are talking about, have thought things through, and are prepared for the inevitable surprises. (Suggested length typically six pages)

Literature Cited - Use a standard citation format. **The list of references does not count toward the page limit of the proposal.**

C. Supplemental Materials. Figures, tables, etc. relevant to the proposal should be included in an Appendix. These are not included in the 15-page limit.

The proposal should be single spaced on plain white paper with at least 1 inch margins on each side, using a 12 pt font size. Each item should be identified by its title. Be concise and clear. **Four** copies of the proposal must be turned into the Graduate Advisor by 5 PM on the due date, **one** week prior to the examination date. The **Statement of Originality** form (attached), signed by both the student and their research supervisor, must be turned in at the same time.

III. Examination Format

The student will make an oral presentation and defense on the assigned date. Plan a 25 min talk. The examination committee will generally focus on questions pertaining to the proposal, but may lead you off in unexpected directions. The student's major professor is invited to the oral

defense, but is not a member of the examination committee and is asked to observe only. The examination committee will decide the result and its evaluation will be indicated on a form to be included in the student's permanent file. The examination committee will discuss the performance and decision with the student and any recommendations or conditions made. Possible outcomes are: Unconditional Pass, Conditional Pass, No Pass, Fail.

Assuming you pass the examination, you will then proceed to the next steps of the Qualifying procedure: (1) setting up your dissertation committee; (2) File your Candidacy papers, which consist of forms to be turned in to the graduate office. You will then be an official Ph.D. candidate.

Note: **Please be extremely careful to avoid plagiarism in preparing the text and figures of your proposal.** Here is a one suggestion as to how to avoid plagiarism: While reading the sources of information that you plan to use in preparing your assignment, take notes on the content, using your own words. While preparing your paper, refer to your notes, rather than the original source. If you feel the need to use a phrase from a source, be sure to put the phrase in quotes, and reference the source.

Statement of Originality

This form is to be turned in to the graduate adviser at the time your written proposal is submitted (4 weeks before your qualifying exam date).

This proposal represents an original research idea, conceived and developed by me. The research proposed differs from that carried out in the laboratory of my research supervisor. I have done a thorough literature search, and I am not aware of any publication describing these experiments. My research supervisor was not involved in topic selection or development of the strategies and methods contained in the proposal. Any discussions I have had with my supervisor about the topic or proposal were general in nature. I may have consulted with other faculty or students, but only to obtain technical details about a method that I had already proposed to use.

Signed,

_____	_____
Qualifying Student	Faculty Supervisor

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