

**BELFER BUILDING - ROOM 202 | TEL: (718) 430-8682 | FAX: (718) 430-8655**

## **THE QUALIFYING EXAMINATION**

**For the Advancement to Candidacy for the PhD Degree**

### **2012 Student Guidelines**

Each candidate for the PhD degree must satisfactorily complete a Qualifying Examination. The purpose of the Qualifying Examination is to ensure that the student has a sufficient background of knowledge needed to proceed towards the PhD degree.

In addition to knowledge obtained from the coursework and relevant literature, students will also be tested for knowledge of experimental strategies and the ability to think on their feet and across the “pitfalls” (controls, alternative approaches, etc.)

Successful completion of the Qualifying Exam marks a student’s transition to the independent research phase of his/her graduate training.

The Graduate Division-wide uniform Qualifying Examination is held in the Spring semester of each year. For PhD students, the examination is usually taken in the Spring semester of the second year in the program. MSTP students usually take this exam in the Spring semester of their third year in the program. On recommendation of the Sr. Academic Advisor, Program Director, and/or Associate Dean, a student may defer taking the exam for one year, based on academic gaps, illness, change in laboratory, etc. It is expected that students taking the exam have fulfilled the bulk of (but not necessarily all) foundation graduate courses and Department-specific course requirements.

### **Registration**

All students scheduled to take the Qualifying Exam must register online for the Qualifying Exam course in the Spring semester in which they are taking the Qualifying Exam.

### **Qualifying Exam Committees**

The exam is organized by the *Qualifying Examination Steering Committee*, consisting of representatives from all the Departments and chaired by the Sr. Academic Advisor and/or Associate Dean of the Graduate Division. The number of Department representatives will vary depending on the number of students taking the examination each year, but must be at least two, to avoid student/mentor conflict of interest.

At the announced date early in the Spring Semester (see Timeline), each eligible student submits a list of four (4) to eight (8) faculty members who would be appropriate to serve on their *Qualifying Exam Committee*, based on the thesis topic. The Qualifying Exam Steering Committee will then attempt to

include as many as possible from the student's list in assembling the student's Qualifying Exam Committee.

The student's Qualifying Exam Committee includes:

- A Department representative from the Qualifying Exam Steering Committee who acts as the Chair (and must approve the Exam Committee).
- At least one member of the Committee should be from outside the student's home Department.
- A typical Exam Committee may include two or more members of the student's home Department, but in some cases it will be more appropriate to include faculty from related "working groups."
- A typical Exam Committee may also include faculty from the PCI (PhD in Clinical Investigation) Department.
- Role of the mentor and/or co-mentor: The mentor and/or co-mentor are *not* a part of the Exam Committee, nor are the mentor and/or co-mentor present at the exam.
- Members of the student's Advisory Committee may participate on the student's Qualifying Exam Committee as long as the first Advisory Committee meeting is held at least three (3) months prior to the exam.

### **Scheduling of the Qualifying Exam**

The Qualifying Exam should be scheduled by the student for any time in the designated exam period (usually mid-April to mid-June; see Timeline). Exams should *not* be scheduled during official school holidays, or on the day of the Graduation Commencement Ceremony, May 30, 2012. (Refer to the Academic Calendar for a listing of official school holidays.)

- Exam times and room location are scheduled by the student. The student must make all arrangements for the exam.
- The student must submit to the Graduate Division Office a form (at a specific earlier date) with the scheduled date/time/location of their oral exam (see Qualifying Exam Timeline). *Students must notify the Graduate Division office of any subsequent changes to the date, time, or location of the oral exam.*
- Four Committee members must be present at the oral examination. If a member is absent, the Committee Chair will attempt to find a suitable replacement. However, if more than one member is absent, the examination must be rescheduled for the earliest possible date.
- **Delaying the Qualifying Exam Date:** There may be exceptions that require a delay in taking the examination (for example, if a Committee Chair feels it is essential for the student to complete a second year Spring semester course). If a delay is approved by the Qualifying Exam Committee Chair, the exam should be completed before the end of July.

## Workshops

There are multiple workshops offered to aid students during the Qualifying Examination process. These workshops include:

- *Introduction to the Qualifying Examination*
- *End Note and Proper Reference Citation* (attendance mandatory; students must complete a registration form at this workshop)
- *Introduction to Proposal Format and Specific Aims*, an optional “Nuts and Bolts” workshops that is focused around the proposal format, tips in proposal writing, and advice on preparation for the examination
- *How to Write a Proposal*
- *Oral Format and Sample Questions*

## Qualifying Exam Proposal

Each student will submit a clear and well-written proposal based on his/her developing PhD project. The proposal is expected to describe the thesis project in which a specific hypothesis is tested by two or three experimental Specific Aims.

The written proposal *must* be the independent work of the student. However, mentors are encouraged to provide feedback to the ideas in the proposal. This should certainly occur before writing starts, but also at the outline stage, and in subsequent discussions. It is expected that the student will seek editorial assistance outside of the mentor.

### **Format of the Proposal:**

The proposal follows a typical predoctoral fellowship style, consisting of:

- **2 or 3 Specific Aims**

List the broad, long-term objectives and the goal of the specific research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm, address a critical barrier to progress in the field, or develop new technology.

- **Specific Aim(s):** Developed after discussions with the mentor about the overarching hypotheses, and the likely directions and outcomes of the proposed thesis research.
- The proposal *must* include **1 “Independent” Specific Aim, developed independently of the mentor or any PI. The mentor will likely comment on this Aim, but it should not be something presented to the student directly by the mentor.**
  - This Aim should still test the hypothesis and will be critiqued for originality and creativity. It is expected that there will be variability in quality and feasibility of the Aim, but the point is for the student to incorporate some ideas from outside the scope of his/her immediate laboratory.
  - This independent Specific Aim must be indicated by an asterisk (\*) in the proposal.

The Specific Aims can be interdependent, but not entirely dependent upon each other.

- **Background and Significance**

Briefly sketch the background leading to the present proposal, critically evaluate existing knowledge, and specifically identify the gaps that the project is intended to fill. State concisely the

importance and relevance of the research described in this application by relating the specific aims to broad, long-term objectives.

- **Preliminary Data** (if applicable)  
No significant preliminary data are required. If available, use this section to provide an account of preliminary studies that are pertinent to this proposal.
- **Research (Experimental) Design and Methods**  
Describe the research design conceptual framework, procedures, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted. Describe any new methodology and its advantage over existing methodologies. Describe any novel concepts, approaches, tools, or technologies for the proposed studies. Discuss the potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims. As part of this section, provide a tentative sequence or timetable for the project.
- **Bibliography or Reference List:**  
List all literature references. Each reference must include the title, names of all authors, book or journal, volume number, page numbers, and year of publication.  
*The reference list should be limited to relevant and current literature.* While there isn't a page limitation, it is important to be concise and to select only those literature references pertinent to the proposed research. The Bibliography is not included in the 12-page count; the proposal should be comprehensive, but concise.  
**References Cited within the Text:** Any references used within the text of the proposal should be numbered sequentially within the text. The full reference should then be cited in numerical order in the Bibliography or Reference List at the end of the proposal. In the list, all authors and full titles of papers must be included.

Please be sure to consult the library guide to proper citation: <http://libguides.einstein.yu.edu/thesis>. The reference librarians are also available to help via text message, online chat, phone and in-person (<http://library.einstein.yu.edu/index.php>).

### **General Instructions for Preparing the Written Proposal:**

- i) *Proposal Length:* The written proposal must be 12 pages in length, including figures. (The Bibliography is not included in the 12-page count, nor is the title page.)
- ii) *Line Spacing:* The text of the written proposal is to be double-spaced except for indented quotations, footnotes, figures, legends and Bibliography, which are to be single-spaced.
- iii) *Required font for text:* Arial 11pt, or Times New Roman 12pt
- iv) *Paper:* If providing hard-copies of the final written proposal to the Qualifying Exam Committee members, they are to be printed on 8 ½ inches by 11 inches high quality paper (24 lbs) that is not punched or perforated in any way. If submitted electronically, the entire proposal (including title page and Bibliography) must be sent as a PDF document.
- v) *Margins:* The margins at the top, bottom, left and right are to be 1.0 inch.

- vi) *Spelling*: The spelling given in any standard dictionary may be used. However, whatever forms are adopted should be adhered to consistently throughout the text of the written proposal.
- vii) *Quotations*: Quotations of more than three lines should be single-spaced, set off from the text in a separate paragraph and indented four spaces, with double-spacing between the paragraphs. Opening and closing quotation marks are omitted. Quotations of three lines or less are enclosed in quotation marks and are run into the text. Please be sure to consult the library guide to proper citation: <http://libguides.einstein.yu.edu/thesis>
- viii) *Tables, Figures, Reproductions*: Tables and figures and all legends should be embedded into the document.
- Tables are numbered consecutively throughout the written proposal. The word TABLE, followed by the appropriate Arabic numeral, is placed above the caption.
  - Figures are numbered consecutively in Arabic numerals, with the word "Figure" (only the first letter is capitalized) and the appropriate numeral appearing before the caption. If possible, figures should be oriented in the "portrait" configuration.
  - Legends should be placed immediately under the figure in order to facilitate the reading of the written proposal.
- ix) *References and Footnotes*: References to published articles should be cited. Every reference listed must appear in the Bibliography. The format for the references included in the bibliography should follow that in the suggested manual of style or a highly respected scientific journal. At a minimum, each reference must include the names of all authors, the title of the article, the name of the journal, the volume number and the pages of the article. Titles of articles must be included. Footnotes are to be placed at the foot of the page and numbered consecutively. Please be sure to consult the library guide to proper citation: <http://libguides.einstein.yu.edu/thesis>
- x) *Title Page*: The title page is to list the title of the written proposal, the student's full name, the full name of the student's mentor, and the student's Department.

***Students must adhere to the format of the written proposal, otherwise, the document will be returned to the student without review.***

### **Submitting the proposal:**

Each student submits the written proposal to his/her Qualifying Exam Committee members via hand-delivery or PDF email attachment. A PDF version of the proposal (with title page) *must* be emailed to the Graduate Division office, as well, on or before the designated submission date as indicated on the Qualifying Exam Timeline. In the rare instance in which the exam date is delayed, the submission date may also be delayed, upon recommendation of the Qualifying Exam Committee Chair. No revisions of the written proposal will be accepted after the designated due date for submission as set forth in the Timeline. If, after the proposal has been submitted, any new data is discovered that the student wishes to include in the exam, the new data should be addressed/presented during the scheduled oral examination.

### **“Mock” Qualifying Exams**

Students are advised to participate in one or more “mock” examinations, particularly with senior students and post-docs. Students are encouraged to seek input and advice from any other source including students, post-docs, faculty members not affiliated with their examination, and outside sources.

Mentors and/or co-mentors should not participate in the mock exams of their own students.

Members of the Qualifying Exam Committee should not participate in the mock exams of the students on whose committee they serve.

Students may not approach their own Qualifying Exam Committee members for advice or comment prior to the examination.

## **Oral Presentation**

The “budding” thesis project provides a scaffold for the oral exam, but the exam itself focuses on determining whether the student has incorporated the fundamental knowledge needed for proceeding towards thesis research. The student must be able to demonstrate a broad understanding of the basic biology underlying the thesis question(s). In addition to knowledge obtained from the coursework and relevant literature, students will also be tested for knowledge of experimental strategies and the ability to think on their feet and across the “pitfalls” (controls, alternative approaches, etc.). The primary focus of the oral presentation should not be the preliminary data. It should focus on the background, experimental approaches, what you want to accomplish and how this fits in the “big picture.” An extensive list of representative “mock” questions will be distributed to students and faculty in order to illustrate the types of questions and level of depth that might be expected during an actual exam.

At the beginning of the Qualifying Examination, the student will make an uninterrupted 10-15 minute oral presentation describing the proposal. A PowerPoint presentation is appropriate (but not required) during this initial period, in particular, to display essential graphics, videos, etc. This is followed by the examination itself, which is free-flowing and at the discretion of the Qualifying Exam Committee. The exam is expected to run approximately 90 minutes. The use of a (blank) white board during the oral examination is appropriate. If necessary, the Chair may stop the exam for a brief discussion, or to allow the student to take a short break.

*Please note: Audio and/or video recording of the oral examination is prohibited.*

## **Grading**

Following the exam, the Committee will vote: *Honors* (indicating an outstanding performance, i.e. in the top 10%), *Pass*, *Postponed Decision* (requiring revision of the written proposal within *one* month of the oral exam date), or *Fail*. The preliminary vote is anonymous, and is to be followed by an open discussion among the Committee members, and then a final vote.

*Note:* The Chair should summarize the key points of the discussion on the Chair’s Summary Sheet, which will be provided to the student and the mentor, and also forwarded to the Academic Affairs Committee.

### **Committee Decision (Final Vote):**

- A majority vote of 3-1 is needed for *Honors*
- A majority vote of 3-1 is needed for *Pass*
- If a 2-2 vote occurs, with 2 Committee members voting FAIL, then the grade for the exam will be *Fail*

- If a 2-2 vote occurs, with 2 Committee members voting POSTPONED DECISION, then the grade for the exam will be *Postponed Decision* \*\*
- If a 2-2 vote occurs, with 2 Committee members voting Honors, then further discussion is warranted. If the vote remains 2-2, then the grade for the exam will be *Pass*.

The student is then brought back into the room and informed of the Committee's decision.

\*\* *Please note: Postponed Decision is for revision of the written proposal only, when the oral examination is satisfactory.* The revised proposal should be distributed to all the members of the Qualifying Exam Committee *within one month* of the oral exam date. The Committee then has seven calendar days to submit final grade to the Graduate Office.

If the oral examination is deemed to be not satisfactory, even if the written document is acceptable, the grade will be FAIL.

### **Failure of the Qualifying Examination**

Students who fail the Qualifying Exam will be placed on academic probation by the Academic Affairs Committee. Dismissal from the program is also possible following a failure in the Qualifying Exam.

### **Appeal of Examining Committee's Decision**

If a student wishes to appeal the decision of the Qualifying Exam Committee, the matter will be considered by the Qualifying Exam Steering Committee. This request must be made in writing to the Associate Dean for Graduate Programs, who will schedule a meeting with the Qualifying Exam Steering Committee. The appeal will either be denied or the student will be allowed to repeat the examination with a new Exam Committee.

### **“Retake” of the Qualifying Exam**

For students who previously failed the Qualifying Exam, the “retake” examination will not be treated as a “rebuttal” of the previous exam that they failed, but rather, be considered a completely new exam independent of the outcome of the previous exam.

### **Academic Affairs Committee Review**

Following the Spring semester, a comprehensive and objective review of each student's progress takes place by the Academic Affairs Committee, taking into account grades received for coursework, the Qualifying Examination, and laboratory productivity as indicated by the mentor. Student's who fail the Qualifying Exam will be placed on academic probation and may at this time receive approval to retake the exam the following Spring.

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All information regarding the Qualifying Examination can be found on the Graduate Division website at <http://www.einstein.yu.edu/phd/index.asp?qualifying-exam>