QE Guidelines for the Molecular Cell Biology Program
Updated April 2014

Deadline and Overview:
The format of the Molecular Cell Biology Program Qualifying Exam will consist of the following: (i) a written document similar to a NRSA-type F31 predoctoral fellowship application http://grants.nih.gov/grants/funding/416/phs416.htm on a topic related to the student’s chosen field of thesis research and (ii) an oral defense of the written document. Students will also be asked to identify five key primary references (peer-reviewed articles) that serve as background to the grant, and will be expected to discuss these with the examining committee. Students are expected to complete the oral defense of the grant no later than March 1 of the second year. MSTP students will complete the oral defense no later than August 1 of the first year. Students who have teaching assistant assignments in the Spring semester of their second year are encouraged to complete their QE by the end of December in their second year.

Overview of MCB Qualifying Exam requirements and expectations

I) Written Document
   A. Length requirements: the document shall follow the format specified for the proposal portion of a NRSA F31 pre-doctoral fellowship application. Margins should not be LESS than one-half of an inch. Allowable fonts shall be no smaller than Times font size 12, or Georgia or Arial font size 11.
   B. The Specific Aims page should describe concisely the Specific Aims of the proposal, including broad, long-term objectives and the specific goal of the proposed research to test a stated hypothesis. This is limited to 1 page.
   C. Research Strategy Section: This section, including tables, graphs, figures, diagrams, and charts, is limited to 6 pages. This section should address the Significance of the proposed studies, including the background leading to the present application; and the Approach (including preliminary studies, if any) to provide experimental support of the proposed hypothesis. The precise format of this section can vary, but students should include discussion of the experimental or methodological approach, expected/anticipated results, interpretations, conclusions and significance thereof, potential pitfalls, and alternative approaches. Students are encouraged to focus attention on developing a well-argued rationale for each aim/subaim, as this is an area often found lacking in NIH Predoctoral Fellowships.
   D. To ensure in-depth knowledge in the proposed field of research, students are expected to read at least 25-50 of the most important papers in the field of interest as a necessary antecedent to writing the grant proposal. Five of these papers (primary peer-reviewed papers, not reviews) should be explicitly identified in a section at the end of the bibliography as key papers which the student will be prepared to discuss during the exam. This part of the bibliography should include PMID numbers to facilitate retrieval of the documents by the examining faculty.
   E. The written document is due to the examining committee one week prior to the exam.
II) Prepared Oral Presentation of the written document (20-25 minutes). This section of the exam should generally follow the outline of the written document.

A. Introduction – focus audience’s attention on a broad/general question(s) early in the talk.
B. Provide brief strong and polished overview of the present state of the field of interest while emphasizing significance/importance of this research.
C. Provide brief and polished overview of the background leading you to focus on the chosen experimental question.
D. State your aims and hypotheses.
E. Explain your experimental approach, expected results…
F. Committee Questioning: Questions will focus on the experiments and approaches proposed, including related background material. The committee may also discuss the five key papers and experiments contained within these papers selected by the student.
G. Format. Students are encouraged to keep the number of powerpoint slides to a minimum, and to use the whiteboard as much as possible. Drawing skills are not important, rather the ability to clearly convey your ideas.

Committee Conference: After questioning has concluded the student will be asked to leave the room and the committee will confer in order to decide whether the student has demonstrated sufficient knowledge and development in the chosen area of research. The entire committee as a group will then call the student back into the room to convey its decision.

III) Expectations

A. The questioning in the exam is expected to be more rigorous than in the past because the area of study now is a student’s chosen field of thesis research and thus the student should be the expert in the room on the subject.
B. The document should be the best paper written to date in a student’s academic career. It is also possible that in some cases the document can serve as the foundation for a predoctoral NRSA application to the NIH.
C. Completion of the newly formatted Qualifying exam will facilitate timely completion of the Thesis Proposal as the written document may serve as a starting point but not a substitute for the written thesis proposal.

IV) While the student is encouraged to seek input and discussion from lab members, faculty (excluding QE committee members) and his/her mentor, it is imperative that the grant document itself be written from scratch by the student. The mentor will be asked to confirm that this is the case.

Consequences of Failing the Qualifying Examination
If the examiners fail the student, separate reports from individual committee members specifying reasons for the failure will be forwarded to the program steering committee for disposition. The steering committee can recommend either that a student retake the examination or that the student not continue to candidacy for a Ph.D. in the Division of Biology and Biomedical Sciences. A decision to dismiss the student or take other action will be made
by the steering committee. An examining committee will limit its deliberation and decision to the narrow issue of whether or not the student passes the examination in question. If the student feels that the action of the steering committee has been incorrect due to a procedural flaw in the examination process, the student may submit a written petition to the Chair of the Programs and Student Affair Committee.

The steering committee may recommend that a student retake the exam. The re-examination must take place within three months of the date of the failed examination. A new examining committee, which may include one or more members from the first committee and an additional two members will be appointed. The steering committee will decide whether a new proposal should be prepared or the original proposal used again and will give the second examining committee specific instructions on areas that should be emphasized in the questioning. The student may not get help on the written document from identified committee members before the retake.