Thesis Proposal Guidelines for the Molecular Genetics and Genomics Program

Timing of the Thesis Proposal (or Pre-Proposal)

NEW: Students are encouraged to present a thesis proposal as soon as possible in their second year, but by no later than June 30th of their second year (MSTP students should complete the thesis proposal by December 31 of their second year). If a student anticipates that he or she will not be able to organize a coherent thesis proposal by this date, he or she must convene a pre-proposal meeting to discuss informally the current project and likely future directions with their thesis committee. The pre-proposal meeting must occur by June 30th of the second year and be followed by a thesis proposal within six months or less. The composition of the pre-proposal committee is identical to that of the thesis proposal (at least four DBBS faculty members, one of whom is the student’s faculty mentor; see above). For the pre-proposal, the student must provide the committee with a brief written description of their work one week prior to the meeting. In the meeting, the student should give a 20-30 minute overview of their expected research path (Introduction followed by a clean discussion of the planned path of research and its significance).

Thesis Proposal Guidelines: Below we outline the recommended format for a thesis proposal. Please note these guidelines mirror the guidelines for an individual NRSA (NIH) Predoctoral (F31) Fellowship. The only difference is that this format is slightly longer than the NIH format; we do this purposefully because when one condenses a grant one almost always improves the quality of the grant. Thus, we hope many students revise their thesis proposal in order to submit it as an F31 Predoctoral Fellowship to NIH.

Page format: Margins: ¾ of an inch on all sides; font – Times 12.
Length:
Specific Aims: 1 page (or two pages double-spaced)
Research Strategy: 9 pages (or 18 pages double-spaced)
  • All text, figures, and tables are included in this page limit; references are not included in the page limit.

Specific Aims are limited to one page.
After reading the specific aims, a reviewer should have a solid conceptual framework of (a) the field of research, (b) the key outstanding question(s) your research addresses, (c) its/their significance, (d) how you will address these questions, and (e) if relevant, why your approach is likely to succeed where previous work has not. In essence, after reading the specific aims, the reviewer should have a crystal clear idea of what you are doing and why it is important to do it.

In NIH lingo: State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved.

List succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology.
Research Strategy: length – 9 pages

(a) Background and Significance 1.5-2 pages
Provide the reader with a concise, focused overview of the research field of interest that introduces and identifies the key outstanding questions your research will address and the significance/need of answering these questions. In short, provide reviewers all the background information they need to understand what you will do and why it is important to do.

- Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses.
- Explain how the proposed project will improve scientific knowledge in one or more broad fields.

(b) Preliminary data (there is flexibility here: you can have one preliminary data section where you put all your preliminary data, or you can integrate your prelim data within each aim. Or, you can use a combination of both approaches, focusing solely on what makes the proposal most compelling). 1-2 pages

(c) Experimental Approach (typically two to three specific aims). 5-7 pages
Aim 1) Title
   - Rationale: briefly explain what you are doing and why it is significant.
   - Experimental Methods: explain what you will do and how you will do it. Focus on what you expect to find with your experiments, how you will interpret your results, and why that are likely to provide you with biologically meaningful information.
   - Discuss potential problems with the results, or why you expect to have little difficulty with them.
   - Summary of Aim: In general many people like to have a mini-wrap up after each aim that succinctly describes the big picture relevance of how successful completion of the proposed aims will drive science forward. (In essence you are underlining the significance of the aim)

If an applicant has multiple Specific Aims, then the applicant may address Significance, Innovation and Approach for each Specific Aim individually, or may address Significance, Innovation and Approach for all of the Specific Aims collectively.

The thesis proposal meeting provides a student with guidance in selecting appropriate research goals and is not a test that the student must pass or fail. When the thesis proposal has been approved and has been reported to the graduate school, the Dean informs the student in writing that he or she has advanced to doctoral candidacy. Final approval of the thesis proposal by the thesis committee must take place by the end of the student’s third year, or the student will no longer remain in good academic standing and will lose registration privileges for the following semester.