

**School of Biological Sciences**  
**Format for Dissertation or Masters Thesis Research Proposal**

**National Science Foundation (NSF) Style Proposal**

**Background:**

NSF is the primary governmental funding agency for projects related to evolutionary biology, ecosystem science, population and community ecology, systematic biology, and some areas of education. Therefore, if you work in one of these fields it is important that you are familiar with the proposal format and guidelines. Since you are not actually submitting a proposal to NSF, we have modified the format slightly, while retaining the major components. If you are a doctoral student, a well-constructed Research Proposal for the School of Biological Sciences could be restructured and submitted to the NSF Doctoral Dissertation Improvement Grants (DDIG) panel for funding after you have advanced to candidacy.

Review Criteria:

NSF assesses proposals based on two review criteria, detailed below. It is important that these criteria are addressed throughout your proposal rather than in separate sections.

1) Intellectual Merit

For this criterion you need to address how your research will advance understanding within your field. Related to this, you also need to demonstrate that you are qualified to carry out the proposed work, that you have an adequate plan for completion of the work, and the exact goals or hypotheses of the research.

2) Broader Impacts

For this criterion you need to address how your research will benefit your field, the broader scientific community, and society as a whole. If your research benefits underrepresented groups or educational training/thought this should also be addressed as part of this criteria. Finally, how your results will be shared with the scientific community should also be addressed.

**Recommended Format:**

Note: all page suggestions are single-spaced. The maximum length for a Masters proposal is 9 pages. The maximum length for a PhD proposals is 12 pages. These lengths do not include a 300 word abstract.

1) Project Summary (Ph.D. and M.S. 300 word maximum)

This section is essentially an abstract.

2) Specific aims/introduction (Ph.D. and M.S. 1 page)

In this section you will need to set stage for the content of your proposal. You should focus on the broad context that makes your research important

addressing both of the review criteria. It is common to present goals/hypotheses in a general fashion in this section.

3) Background and Significance (Ph.D. 3-4 pages, M.S. 2-3 pages)

In this section you will provide the theoretical background of your research. What data has been collected? What gaps exist in the field? How will your project move the field forward? Why should someone care about your research? You should move from general to specific, providing a detailed explanation of the questions or hypotheses you will ask. It is also important to explicitly state how your hypotheses will be tested and what constitutes a significant result (alternatively this could be addressed in section 5 or in both).

4) Preliminary Data (Ph.D. 2-3 pages, M.S. 1-2 pages)

In this section you will present any preliminary data that is available. If you do not have preliminary data then you should expand your background and significance section accordingly. Preliminary data does not solely need to be data that you collected. If there is research that has been conducted by other researchers that relates to your question and or interpretation of the results, present it here. This section will help to present what you expect to find and why. You should think of this section as being your proof of concept.

5) Research Design (Ph.D. 2-4 pages, M.S. 2-3 pages)

In this section you will present the nuts and bolts of how you will carry out your research. What hypotheses will you test (this could be stated in section 3 or 4)? What data will you collect? What analyses will you use? What constitutes a significant result? How will your results be disseminated? If you have presented specific hypotheses it is a good idea to address which analyses will be associated with which hypothesis. This is where you demonstrate that you have the skills and understanding to accomplish what you are proposing. It is also a good idea to include a timeline in this section.

6) References

We do not require a specific format for references, but you need to include enough references to demonstrate your familiarity with the field.

7) Other

Anything that you can illustrate in a graphical format (tables or figures) is encouraged if it makes what you are presenting easier to understand. The section titles presented here are not required, but rather guidelines for content. Create section headers that make sense for your project and allow the reader to locate information easily.