

Department of Biological Sciences
Graduate Committee Policies for Graduate Proposals

Last updated 7 May 2024

The Research Proposal is an important benchmark in your research-based graduate program. We hope that you will work closely with your research advisor early in your program to develop a working draft to share with your committee to finalize your proposal.

1. Purpose of your Research Proposal
 - a. Clarifies your approach: This document outlines the intended research, including the field, lab, classroom and/or analysis methodology, timeline, and feasibility.
 - b. Situates your research within existing work: This document synthesizes relevant research to highlight the uniqueness and importance of the proposed work.
 - c. Prepares you for external grant proposals: Your proposal should be adaptable to the NIH and NSF grant formats. Some graduate students in our department find their proposal helps serve as a basis for external grant proposals (note: seeking external grant funding is *not* a requirement of our program).
2. Format of Proposals in the Department of Biological Sciences
 - a. Layout
 - i. While there is a template for the Title Page of your proposal (see details on the last page), the content and length of each section may vary depending on your project, the field, and whether you have preliminary data or not.
 - ii. Seek proposals from other students in the program whose field aligns with yours to use as examples.
 - b. Length
 - i. The maximum length for a Master's proposal is 9 pages. The maximum length for a PhD proposal is 12 pages (not inclusive of the abstract nor citations).
 - ii. May be single-spaced but should have at least 1" margins on all sides.
 - c. Sections
 - i. Title page for signatures
 1. This represents the first page of the Proposal. Please see details on the last two pages.
 - ii. Abstract should be a maximum of 300 words.
 - iii. Research questions/specific aims
 1. The purpose of this section is to describe concisely and realistically what the proposed research is intended to accomplish.
 2. This section can be a one-paragraph narrative that describes the broad, long-term goals of the project and the problem(s) the project will address. The narrative should be followed by one or more specific research questions/aims, each with a stated hypothesis, as appropriate.
 3. Please refer to the "SBS Thesis/Dissertation Guidelines" that outlines the minimum number of data chapters for each program (at least one for MS and three for PhD). This requirement might inform the number of aims or research questions you intend to ask as part of your work.

iv. Background and Significance

1. In this section, you will provide the theoretical background for your research. What previous research has been conducted on this topic, or what is the current state of knowledge relevant to the proposed research? 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 your research questions or hypotheses.
 - a. Intellectual Merit: Includes a concise statement/paragraph about the original contributions the proposed research makes to the area of study. The merit may involve clarifying connections between the proposed research and other work in the same or different fields (and including sufficient citations to support the existence of this work). This statement clarifies the contribution of the proposed work in the greater context of what has been done.
 - b. Broader Impacts: Includes a statement/paragraph describing the potential that the proposed research has to impact the field or society or both. The broader impact may include what new technological, industry, or academic development might come from the research. It also includes student training and benefits to public education. This statement clarifies the impact of the proposed work in “making the world a better place.”

v. Research Design/Approach

1. This section is a narrative partitioned by Research Question/Aim that describes the data collection procedures, anticipated analyses and interpretations, and potential problems and resolutions of those problems. You must convince the committee that you have thought about unexpected outcomes and how you would address them.
 - a. Data: What data will you collect? What analyses will you use? What constitutes a significant result? How will hypotheses (if relevant) be tested?
 - b. Preliminary Data: If applicable, this section could contain data already collected that is relevant to the proposal. The proposal should clarify if preliminary data are presented for context or are to be considered as part of the program (i.e., research conducted as part of an undergraduate project for which credit was earned or published prior to the program, or research completed as part of a Master’s thesis that was defended; those cannot represent part of the current program).
 - c. Analyses: If you have presented specific research question/aims/hypotheses, explain which proposed analyses will be associated with which question/aim/hypothesis.
2. This section should include a timeline for research progress,

including clear goals and outcomes. What products do you expect from your research and when do you anticipate they will be produced? How and when will your results be disseminated?

3. This section should include a short paragraph summarizing the data management plan. In this paragraph, you should include i) what types of data will be generated, ii) in what form these data will be recorded (e.g., hand-written, electronic), iii) where these data will be stored, iv) the duration of data archiving, if applicable, and v) how the data will be made appropriately available to the scientific community, if applicable. If you do not know this information, talk to your advisor.
4. If your current or future research involves any borrowed instruments, scales, questionnaires, or reproduced figures, images, photos, or music, you are required to secure copyright permission to reuse or adapt this material in your final thesis or dissertation. Include the permission request letter and respond from the copyright holder or a plan on from whom and when this will be secured, in advance of your final defense. If your research does/will not use any borrowed or adapted materials, please report that in this section.

vi. References

1. Again, this section is not included in the page limit.

d. Organization

- i. You have the choice to organize your proposal, including the above-listed sections, in one of two ways (if you have more than one project). For example:

<u>Consolidated Approach</u>	<u>Separated Approach</u>
Abstract	Abstract
Research questions/specific aims	<i>Optional</i> - General background
<ul style="list-style-type: none"> • Projects 1, 2, 3 	Project 1
Background and Significance	<ul style="list-style-type: none"> • Research questions/specific aim 1 • Background and Significance for Project 1 <ul style="list-style-type: none"> - IM and BI for Project 1 • Research Design/Approach for Project 1
Research Design/Approach	Project 2
<ul style="list-style-type: none"> • Projects 1, 2, 3 • Timeline for Projects 1, 2, 3 	<ul style="list-style-type: none"> • Research questions/specific aim 2 • Background and Significance for Project 2 <ul style="list-style-type: none"> - IM and BI for Project 2 • Research Design/Approach for Project 2
References	Project 3
	<ul style="list-style-type: none"> • Research questions/specific aim 3 • Background and Significance for Project 3 <ul style="list-style-type: none"> - IM and BI for Project 3 • Research Design/Approach for Project 3
	Timeline for Projects 1, 2, 3
	Data Management Plan for Projects 1, 2, 3
	Copyright Permission Requests and/or Approvals
	References

- ii. Just keep in mind in your final thesis/dissertation that you will need to have a global Introduction and global Discussion covering all separate

projects of your thesis/dissertation, so it is wise to begin to envision how you will “tell that story”.

3. Timing of Proposal Preparation, Meeting, and Approval

a. All students

- i. Graduate students should aim to complete their proposals as early in their program as possible to establish a clear plan for their research agenda and seek feedback from their committee.
 1. For PhD, no later than the end of their fourth semester.
 2. For MS-T, no later than the end of their second semester.
- ii. All research-based graduate students in our programs should take BIO 594: Foundations of Biological Research in their first two semesters. Work completed as part of this class should provide the foundation of the literature review and research direction for your proposal.
- iii. Proposal Meeting: A full committee meeting should be arranged early in the program (often after the Plan of Study and Committee form meeting) to discuss a draft of the written proposal previously reviewed by your advisor.
 1. Gain approval from your advisor on a working draft and then schedule an hour-long meeting with the entire research committee.
 2. Distribute the proposal at least two weeks prior to the proposal committee meeting.
 3. Meetings usually involve:
 - a. A short presentation by the student on their research proposal (10-20 minutes) to remind their committee of the research goals and plan.
 - b. A question-and-answer session among the committee and student to discuss any concerns or suggested revisions to the proposal. If no revisions are required, all committee members sign the Title Signature Page at the end of the meeting
 - c. If revisions are required, the student should make revisions and seek additional feedback outside the meeting, until the committee is satisfied with the proposal. The Title Signature Page is often signed via email in this case.
- iv. Graduate students will not be allowed to defend their thesis or dissertation until their proposal has been approved by their entire committee and a signed title page and proposal is submitted to the appropriate location (see below). This step (i.e. finalization and approval of the proposal) cannot occur in the same semester as the one in which they graduate.

b. Doctoral Students

- i. BIO 797: PhD students are required to take four BIO 797 “Doctoral Proposal Research” credits no later than the semester during which they plan to take their comprehensive exams. These credits may be split in any manner across semesters. We recommend that all four credits be completed by the end of a students’ fourth semester of their program.
- ii. Finalized, approved proposals (including the signed Title Page page) should be housed in the student’s personal Biology SharePoint folder as soon as it is approved by the committee.

- iii. Additionally, **AFTER** you have successfully passed your oral comprehensive exams (this may mean that you need to set a reminder on your calendar), the following materials should be submitted to the Graduate School by the student:
 1. The approved proposal with the signed Title page.
 2. The “Verification of Research Subject or Participant Compliance” form (regardless of your type of research)
 3. A copy of your IRB/IACUC approval letter (if appropriate)
 - a. IACUC approval letters needs to be requested during the year of proposal approval, as IACUC approval is requested annually.
 - b. If your research includes multiple projects with separate IRB or IACUC approvals, each project may have its own letter or approval that needs submitted.
- iv. Extra notes for doctoral students:
 1. When you submit your proposal to the Graduate School, you must be enrolled in at least one hour of coursework or you will be charged Continuous Registration.
 2. You must have a Plan of Study approved and on file with the Graduate School or your proposal will not be accepted.
 3. The Research Committee that is on file with the Graduate School must match the names on the Proposal Signature Page or your proposal will not be accepted.
 4. Once the Graduate School accepts your proposal the Registrar's Office will change your Proposal Hours (BIO 797) from “NR” to “S”.
- c. Master's Students
 - i. Finalized, approved proposals (including the signed cover page) should be housed in the student's personal Biology SharePoint folder as soon as it is approved by the committee.
 - ii. A copy of the approved proposal is **NOT** submitted to the Graduate School, the completion of this benchmark is a Biological Sciences requirement.
4. Title page for proposals
 - a. For MS-thesis students, an example title page is on the next page. Please copy this as the first page of your Proposal.
 - b. PhD students need to use electronic version available on [Graduate School webpage](#).

UNIVERSITY OF NORTHERN COLORADO
Greeley, Colorado
The Graduate School

A Proposal for a Master's Thesis

[Proposed Title of Thesis Centered Here]

[Student's Full Name as it appears in Banner]

MASTER'S COMMITTEE

[Advisor's Full Name], PhD, Chair

[Committee Member #1's Full Name], PhD, Committee Member

[Committee Member #2's Full Name], PhD, Committee Member

College of Natural and Health Sciences
Department of Biological Sciences
Biological Sciences (Thesis) – MS Program
[Month and Year]