

Biology

Undergraduate

Thesis Handbook



Updated: 12/6/2017

Senior Thesis Directions and Formats
Biology Department

Biology and Biochemistry majors writing a thesis in the Biology Department are to submit their Senior Thesis to the Department, following these general guidelines for format and organization.

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Undergraduate Thesis Checklist

- Use a consistent citation method throughout (consider using citation management software)
- All copyrighted material is properly attributed
- Proper citations for already published figures
- All figures either have legend below or on facing page (not compiled at the end of the chapter)
- All figures either in text or on their own page
- Title page in correct format (see example p. 4)
- Table of contents included (see example p. 9-10)
- Abstract included
- First abbreviation is defined
- Use scientific nomenclature as defined by your field
- Faculty advisor signs final thesis before submission
- Submit thesis through eScholarship
- Submit hardcopy thesis to Biology office

Thesis Template and Formatting Instructions

Sections of the thesis should appear in this order. Unless otherwise specified, font and character point should be Times New Roman, 12pt (for example). Pagination begins with (i) – the title page. Page #1 begins with Introduction to the thesis.

Thesis Page # Section

i	Title page (see example, p. 4)
ii	Copyright page (see example p. 5)
iii	Abstract (see example p. 8)
iv	Table of contents (see example p. 9-10)
v	List of Figures. Include: <ul style="list-style-type: none">• figure number (ie Figure 1, 2, etc)• figure title• page number
vi	List of Tables (as above)
vii	Acknowledgements <ul style="list-style-type: none">• thesis adviser• funding• special thanks, etc.

1 Introduction: typically 1-2 pages.
This is where the topic of your thesis is put into a larger scientific context. What are the big questions, problems or interests? Why are they interesting or relevant? What specifically is your thesis project and how has your work extended the knowledge and/or contributed to our understanding of the larger picture.

Background (or Literature Review): This section can be in subtopics and typically includes information relevant to the context of your project, or necessary to fully understand your approach; it provides the foundation to fully understand your project and its relevance

Methods: Check with your thesis adviser on what and how to reference the methods you have used. In some cases well-established methods are simply referenced; in others a detailed explanation will be needed. A thesis is often the only written record of an experimental procedure before publication and is an important laboratory resource.

Results: are often organized in sub topics (as seen in publications). Each sub topic generally describes the question to be examined, presents the results and presents a conclusion/interpretation. Speculation and/or relevance to the larger scientific question is usually reserved for the discussion. Figures and tables should be embedded in the text at the point of their description, much like what is

seen in publication. If necessary the figure and its legend can appear on the adjacent facing page. Figures are not to be grouped at the end of the thesis or the results section. Previously published figures must be have permission for use by the publisher (see section on copyright approvals.) Unpublished figures or data from other sources usually carry a “courtesy of” disclosure. Reference to unpublished results not part of the thesis usually carries a note “unpublished results”, followed by (your name or the PI’s name or the name of the person giving your permission to use the information.

Discussion: Along with the introduction, this is often a difficult section to write. Here the results and the interpretations are reviewed and put into the context of bigger questions. This includes verifying previous results, supporting hypotheses or suggesting alternatives. This is also where you explain how your data raises new questions and offers a strategy for future work.

References: Use a consistent format and check with your adviser regarding their preference style.

Appendix: This is an optional section where additional data (e.g. DNA sequences) not useful to embed in the text of the thesis can be added.

How do I get Copyright Permission?

In many cases while writing your thesis you may need to utilize figures and images that were developed and created by someone else. Please note that before you use any figure that you did not develop in its entirety you **must obtain permission first**. Depending on the source of the material the process of obtaining permission may vary. Please see below for some guidances on how to obtain copyright permission:

1) Is the figure you wish to use published in a journal?

Typically when a figure is published in a journal the copyright holder of that figure is the journal itself and not the scientist who created the figure. Most journals include instructions on how to obtain permission on their websites. Some examples are as follows:

<https://www.nature.com/reprints/permission-requests.html>

<https://www.sciencemag.org/help/reprints-and-permissions>

<http://www.pnas.org/site/aboutpnas/rightperm.xhtml>

*Note some journals may not require a permission request but you still want to check

2) If the figure is not currently published, who created it?

If the figure is made by a member of your lab you may not need to formally request permission (although it is still a professional courtesy to ask). If the figure, however, is made by a member of another lab at another institution you may want to consider formally requesting permission through the use of a request letter (see example on next page). You can also seek guidance from your PI.

3) Now that I have permission how do I cite the source in my thesis?

Regardless as to whether the figure you intend to use originated in a journal or from another lab, the figure must be properly attributed in your thesis. A couple of items to keep in mind:

- Many journals indicate the manner in which a figure must be attributed (style, nomenclature, location of citation). Be sure to adhere to the attribution instructions in your thesis.
- If there is not a defined method of attribution please adhere to the citation style prescribed by your PI for your citations.

4) Any other questions related to proper figure attribution can be directed to your PI or to our Research Librarian, Enid Karr (enid.karr@bc.edu).

[Date]

[Rights holder name and address]

Dear Permissions Editor [Insert name, if known]:

I am in the process of writing my undergraduate biology/biochemistry thesis at Boston College under the supervision of [Insert principle investigators name including title]. I would like your permission to include the following material in this project:

[Citation of material for which permission is sought, specifying exactly what material would be used]

The thesis will be used [Describe how the project and material will be used]. It will be available to [specify whether the thesis will be available through eScholarship or if any other publication plans are intended].

If you do not control the copyright on all of the above mentioned material, I would appreciate any contact information you can give me regarding the proper rights holder(s), including current address(es). Otherwise, your permission confirms that you hold the right to grant the permission requested here.

Permission includes non-exclusive world rights in all languages to use the material and will not limit any future publications-including future editions and revisions-by you or others authorized by you.

I would greatly appreciate your consent to my request. If you require any additional information, please do not hesitate to contact me. I can be reached at:

[Your contact information]

A duplicate copy of this request has been provided for your records. If you agree with the terms as described above, please sign the release form below and send one copy with the self-addressed return envelope I have provided.

Sincerely,

[Signature]

[Printed Name]

Permission granted for the use of the material as described above:

Agreed to: _____ Name & Title: _____

Company/Affiliation: _____ Date: _____

[THESIS TITLE in 24pt.]

[Author's full name in 16pt.]

An Undergraduate thesis
submitted to the Faculty of
the department of biology
in partial fulfillment
of the requirements for the degree of
Bachelor of Arts/Science in Biology/Biochemistry

Boston College
Morrissey College of Arts and Sciences

[month and year of acceptance of thesis]

[TITLE OF THE THESIS]

[Author's name]

Advisor: [Thesis advisor's full name, with suffixes, e.g., Ph.D.]

[The abstract of the thesis goes here. The abstract should include the overall theme of your thesis, your general method of inquiry as well as how your conclusions relate to the field and its importance]

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BOSTON COLLEGE
Morrissey College of Arts & Sciences
Biology Department

The Thesis of: _____
(Student's Name)

Title: _____

Submitted to the Biology Department in the Morrissey College of Arts & Sciences has
been read and approved by the Advisor:

Advisor (Print Name)

Advisor (Signature)

Date