

Biology – The Science of Life

Biology Honors Program

The Department of Biology offers a Bachelor of Science degree with Honors that requires a research thesis in an area of biology. The program is designed to provide superior undergraduate students with opportunities to conduct original, high caliber research in preparation for graduate school, professional training, or a position in an industrial or government research laboratory.

Admission to the program:

Students with a minimum overall grade point average of 3.2 and a minimum grade point average of 3.4 in Biology and supporting science courses (Chemistry, Math, Physics) are eligible to apply for the program. Students must submit an application to the Biology Honors Program Committee a minimum of two semesters before the planned graduation date. Applications to the Honors Program must include:

- Honors Program application with signatures of both the USF faculty research mentor and the student's academic advisor
- a 2-page proposal of the research to be conducted (see below)

Upon acceptance into the Biology Honors Program, students must submit a change of academic program (CoAP) request (available at <http://myusf.usfca.edu/onestop/change-academic-program-instructions>).

Program requirements:

- Honors students must complete two independent study courses within their final two semesters at USF (BIOL598 and BIOL599). Honors credit is earned through enrollment in:

BIOL598—Thesis Research for Biology Honors Program (2-3). Requires consent of instructor and department chair. Selected upper division students have an opportunity to work on a research project under the direction of a faculty member.

BIOL599—Thesis Writing for Biology Honors Program (1-2). Prerequisite: BIOL598 (or corequisite). Preparation of honors thesis of research completed in BIOL598.

The Honors Program requires a minimum of two units BIOL598. A combination of up to 4 units of BIOL598 and 599 can be counted towards Biology upper division laboratory/field course requirements.

- Honors students will submit a formal written thesis
- Honors students will give public oral seminar presentation

An Honors Thesis Committee consisting of the research mentor and two additional faculty members provides guidance during the research experience. One member of the Thesis Committee can be from outside the Biology Department or from an extramural institution.

The Thesis Committee will make a recommendation to the Honors Thesis Program Committee and the department chair who will provide final approval.

Successful completion of the Biology Honors Program is recorded on the student's transcript.

Honors Program Timeline

One year before graduation

- Submit application to the Honors Thesis Program Committee
- Assemble Thesis Committee
- Upon acceptance, submit change of academic program to university registrar

Semester before graduation

- Register for BIOL 598 (2-3 units)
- Conduct independent research with USF faculty mentor

Final semester at USF

- Register for BIOL598, if additional units of research are desired
- Register for at least 1 unit of BIOL 599
- Complete research and write thesis
- Submit thesis to Thesis Committee for approval
- Present departmental seminar prior to the end of the semester (presentation can be given before the final thesis is complete if approved by thesis committee)
- Submit approved thesis to Honors Program Committee
- Submit final honors thesis to the USF electronic repository maintained by Gleeson Library (details provided at https://www.usfca.edu/sites/default/files/library/etd_submission_guide.pdf)

Proposal Formatting Guidelines

Honor's Program Proposal Guidelines

All applications for the Honors Program must include a written proposal outlining the research that will be conducted. The proposal should be a maximum of 2 single-spaced pages (~1100 words), exclusive of the Title and Literature Cited.

Proposal Title: Provide an informative title (≤ 25 words).

Introduction and Background: Provide an introduction to the general question that your research will address. Include a concise overview of the background to the problem, highlighting relevant past research and key questions remaining in the field. This section should explicitly state the hypotheses that your research will address. You should cite primary research articles and include the references in the Literature Cited. (~ 400 words)

Methods: Describe the methods that will be used to address the central question(s) of your research. If your research will utilize a number of techniques, describe each one and its role in testing your hypotheses. Include information on how your results will be analysed (e.g., statistical tests) and interpreted. Provide sufficient information so that the methods can be assessed while avoiding extraneous details. (~ 450 words)

Expected Results and Significance Statement: Briefly outline the expected results for your research, highlighting results expected from specific methods or analyses described in the methods. Outline how your results will further research in your field of interest and the relevance of the research to the scientific community in general. (~ 250 words)

Literature Cited: Provide an alphabetical list of the research articles, books, and other relevant materials cited in the text. The specific formatting of the Literature Cited should follow the conventions of a major journal in your field and include the authors, title, year of publication, and the journal name and issue or book publisher.



CHANGE THE WORLD FROM HERE

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Oral Presentation Guidelines

All students completing the Honors Program in Biology must present a public seminar that details the independent research that was conducted. Research seminars must be presented at the end of the academic semester prior to the final day of classes. Students are responsible for arranging a time acceptable to all members of the thesis committee and advertising their talk to the Biology Department.

Research seminars should be 15-30 minutes in length and provide an introduction to the research field as well as results and conclusions from the research study. Students are encouraged to use presentation software (such as PowerPoint or Keynote) and to utilize figures that will be included in their written thesis. An additional 10 minutes should be planned for questions from the audience.

The research seminar is similar in format to the written thesis and should include background information, methods utilized, experimental data and results as well as conclusions and insights for further study.

Thesis Formatting Guidelines

A formal written thesis is required for successful completion of the Honors Program in Biology. It is a test of the student's ability both to undertake and complete a sustained piece of independent research and analysis and to complete a written document detailing the research in a coherent form according to the rules and conventions of the academic community. A complete honors thesis is due to the student's Thesis Committee **at least one week before** the last day of classes in the student's last semester at USF.

The final thesis document should have 1-inch margins and use 10-12 point font. References should be in the format of an accepted journal style (agreed upon by advisor and student). In addition to the Introduction, Methods, Results, Discussion sections, you should have a title page, abstract, table of contents, and list of references. The document should contain embedded figures and tables illustrating the data and/or conclusions.

Required Thesis Components
Abstract The abstract should be up to 400 words, written in the present tense and normally includes: (1) a statement of the problem the research sets out to resolve; (2) the methodology used; (3) the major findings and conclusions.
Introduction The introduction typically has a minimum of 500 words and should provide background about the research question and a summary of the current knowledge of the field of study.
Methods The Methods section is variable in length but should provide a complete description of all techniques and materials used in the project.
Results The Results section is variable in length and describes the findings of the research project. It should include figures/tables that represent data with associated legends.
Discussion The discussion typically has a minimum of 500 words and should provide answers – to the extent possible – to the questions or problems raised in the introduction. The purpose of the discussion is to view experimental findings in the context of the current literature, relating back to the introduction. Provide discussion as to the significance of the work and how it adds to the field or may stimulate future research.
References A complete, properly formatted list of all references cited in the thesis.