

**CSULA Department of Biological Sciences  
Undergraduate Honors Thesis (BIOL or MICR 3960) Guidelines**

**Procedures and Deadlines**

Consult with your Thesis Advisor on the timing for completion of your thesis. In general, plan to begin writing your thesis at the beginning of the term in which you plan to graduate.

Work with your Thesis Advisor to write a highly refined draft for Thesis Committee review. Once approved by the Thesis Advisor, give your draft to your other Thesis Committee members no later than the end of the 12th week of the term in which you expect to defend. Make any necessary revisions in consultation with your Thesis Advisor. Once the final version is approved by your Thesis Committee, give the signed thesis to the department staff member who handles the Undergraduate Honors in Biology/Microbiology Programs no later than three working days before the end of the term in which you expect to graduate. After your thesis has been approved and turned in to the department, paperwork will be submitted by department staff to change all BIOL/MICR 3960 grades from RP to CR.

**Academic Honesty**

As in all courses at the University, you must abide by the University's Academic Honesty Policy, which may be found online at <http://www.calstatela.edu/academic/senate/handbook/ch5a.htm>.

## **Required Honors Thesis (BIOL or MICR 3960) Components with Guidelines**

**General Format.** The final document should be single-spaced in 11-point Arial or 12-point Times New Roman font with one-inch margins on all sides with a maximum length of 15 pages, including Title page. Page limit does not include References or Figures and Tables.

- I. **Title Page** ***Use Thesis Title Page.***
  - Convey the specific nature of the proposed study.
  - Type the title and format it so that:
    - Only the first word and proper nouns are capitalized, or
    - All words except articles, prepositions, and conjunctions are capitalized.
  
- II. **Abstract** ***limit: 300 words***
  - Briefly convey the research conducted, including the rationale, so that a general audience can understand what you did.
  - Include the hypothesis or objective of the study, an overview of methods, the results, and their significance.
  - Avoid acronyms, abbreviations, citations, and technical jargon specific to the field.
  
- III. **Objectives** ***limit: ½ page***
  - List specific hypotheses tested, expressed as statements.
  - If the project did not test a hypothesis, clearly state the objective(s) met.
  
- IV. **Background and Significance** ***limit: 4 pages***
  - Introduce the topic to a reader outside of the field.
  - Review the primary literature, summarizing the key information that is relevant to your research.
    - Synthesize information; do not simply list unconnected facts.
    - Include relevant unpublished data (with citations) from your lab.
    - Properly reference all published and unpublished work that you mention.
  - Briefly restate your objectives, explaining how objectives relate to earlier work covered in the literature review.
  
- V. **Experimental Design and Methods** ***limit: 2½ pages***
  - Describe experimental procedures used, measurements made, analyses performed, and statistical tests applied.
    - Explain the purpose of each experiment. (Topic sentences are useful). Do not just list “cookbook” steps; explain **why** you did a procedure.
    - Explain treatments versus controls, where appropriate.
    - Include detail such as sample sizes and the number of replicates.
  - Include sources of specialized reagents, samples or equipment as appropriate.
  - Include citations for published procedures, software, and statistical references.
  - If the work involved animal or human subjects, state that you complied with all appropriate governmental and institutional guidelines (IACUC/IRB).
  
- VI. **Results** ***limit: 5 pages***
  - If you tested a hypothesis:
    - Describe each experimental approach and finding you undertook. Follow

- the style used by a leading journal in your particular discipline of biology.
- Build figures or tables as needed to document your results (see below).
- Every part of a figure should be described in detail in sentences in your results section.
- Include results of statistical tests as appropriate indicating clearly whether they support or refute your hypothesis.
- If your thesis has an objective that does not involve testing a hypothesis (for example, developing a new method or procedure):
  - Describe each experimental result you obtained as relates to the successful achievement of your objective(s).

### **Figures and Tables**

- Incorporate figures and tables into the results section.
- In close consultation with your thesis advisor, create figures and/or tables to clearly and logically present the data you generated for your thesis. Also use figures, tables, or flowcharts where needed to illustrate complex ideas, designs, and methods. This can help explain complicated experimental designs, intracellular pathways, geographical sampling locations, etc.
- All figures and tables must include concise, explanatory legends or captions. Table captions are presented above the table, while figure legends are presented below the figure.
- If you reproduce someone else's figure, you must include a citation in the legend indicating where this figure or schematic diagram came from. This citation needs to be included in your References section.

## **VII. Discussion *limit: 1 page***

- In a broad sense, explain how your work:
  - Filled any gaps in current knowledge or improved upon current procedures.
  - Contributed to the advancement of your field, benefited society, and/or led to improvements in human or environmental health.
  - Lay the foundation for future research.

## **VIII. References *No page limit***

- List all citations mentioned in the text, and only citations mentioned in the text, using one of the following formats:
  - In numerical order as mentioned in text; reference in text by number.
  - In alphabetical order, by last name of the first author.
  - In alphabetical order and enumerated, with numbers cited in the text.
- Follow one consistent format for all references!
  - Use the format followed by a leading journal in your particular discipline of biology. Be consistent!
  - **Note:** If cited, the theses of former members of your lab should be included in the list of references, following the standard format for a dissertation.