

Senior Project Proposal

PSC 3001 – Introduction to Senior Projects in Science

Due: Thursday, May 1, 2014 at 11:59 pm

Required Components:

1) Project Title

What is the title of your project? Your title should be both interesting and specific.

2) Abstract

How would you summarize your project in one paragraph? You should clearly state the problem being investigated and briefly discuss the experimental design and anticipated results.

3) Project Description

a) Introduction

What is the scientific problem you plan to study and why is it interesting? This section should include a description of the scientific problem that will be investigated. It should address why this scientific problem is important to society and relevant to your field of study. Properly labeled equations and figures may be provided where applicable.

b) Related Work

What is currently known by the scientific community regarding the scientific problem you plan to investigate? A survey of the scientific literature must be conducted, with the results summarized in this section. Before you begin your senior project, it is very important to know what research has already been conducted within your area of interest. A minimum of three peer-reviewed journal articles that are directly relevant to your senior project topic must be described and cited in this section.

c) Objectives

What do you plan to accomplish within the time frame of your senior project? The goals of your senior project must be clearly stated in this section. Please be as specific as possible. The scope of your senior project should be carefully considered and discussed with your advisor.

d) Materials and Methods

What scientific principles, experiments, and supplies will be used to address the scientific problem of interest to you? The theoretical basis behind the methodology that will be used to address your scientific problem should be explained in this section.

e) Sustainability

How will the experiments planned and/or results obtained impact the environment or our community? In this section, you should demonstrate that you have considered ways to minimize the impact of your project on the environment. This is also a place to explain if your plans involve less sustainable methodologies for legitimate reasons.

4) Budget

How much will your senior project cost? Please list the equipment and supplies that will be needed to complete your senior project and include which pieces of equipment and supplies are already available at LTU. If you are in need of additional equipment or supplies, you must provide the name of the manufacturer from which the required equipment/supplies can be purchased and an estimate of the cost of each item. Please be as specific as possible. Be sure to discuss your needs with your senior project advisor.

5) Timeline

How long will your senior project goals take to accomplish? Please describe the overall timeline of your project, as well as a more detailed timeline for individual tasks to be completed within your proposed project. You may choose to use a Gantt chart to visually represent your timeline. You will also need to identify time within your proposed fall schedule to work on your project. You should plan to spend at least six hours per week on your project, although not all of this time necessarily needs to be spent in a laboratory. Indicate which hours will be spent with your research advisor (i.e., planning, working in the laboratory, discussing results) and which hours will be spent working independently (i.e., updating your laboratory notebook, analyzing data, performing literature searches, preparing posters, oral presentations, or manuscripts for publication). Please be sure to discuss your needs with your senior project advisor.

6) Key Personnel

Who will help you accomplish your senior project goals? Describe the role of any personnel who will be assisting you with your project. This must include a faculty mentor from within the Department of Natural Sciences, even if this person is not your primary advisor. You must also request a letter of support from your primary advisor. (If this advisor is not a faculty member in the Department of Natural Sciences, a letter must be requested from your faculty mentor instead.)

7) References

All sources must be cited using one of the following professional formats:

Biology/Chemical Biology: American Physiological Society

- <http://www.the-aps.org/mm/Publications/Info-For-Authors/Composition#references>

Biology/Chemical Biology: Cell

- <http://www.cell.com/authors#sections>

Chemistry/Chemical Biology: American Chemical Society

- <http://library.williams.edu/citing/styles/acs.php>

Physics: American Physical Society

- <http://publish.aps.org/files/styleguide-pr.pdf> (see pages 7-8)

References should be cited within the text of your proposal in appropriate places by author name and year of publication inside the punctuation. *For example:* The primary structure of this enzyme has been determined (Timmons et al., 2014).

General Guidelines:

- 1) Your senior project proposal is a formal document. Please avoid using colloquial language. Your proposal should be written using proper grammar and sentence structure with no spelling mistakes.
- 2) The target audience for your senior project proposal should be your peers. Please ensure that your report is written at a level appropriate for all students in the class to understand. You cannot assume that all scientists will be familiar with your topic of interest.
- 3) A document titled *PSC 3001 Senior Project Proposal Evaluation Rubric* will be posted on Blackboard that contains additional formatting instructions and evaluation criteria.