

Fall 2016

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Meeting times: TBA	Phone: 619-849-2705
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PLNU Mission

To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service becomes an expression of faith. Being of Wesleyan heritage, we aspire to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

COURSE DESCRIPTION

In BIO 683, students write a thorough literature review and bibliography related to their chosen biology education problem, then design, carry out, and analyze the results of their original research, draw conclusions, and propose implications of their findings. This process culminates with the completion of the student’s written thesis, as well as a public presentation of the research. Students register for each thesis unit (683 a through f) in sequence corresponding to the 6 units necessary to complete the thesis requirement. Students may register for as many as three thesis units in a single semester (i.e., 683a, 683b, and 683c) or as few as one unit. At the end of each semester a grade of Credit/No Credit is issued reflecting the student’s satisfactory progress toward thesis completion. If in the final semester (BIO 683f) of thesis enrollment the student has not completed all requirements for the thesis, the student is automatically enrolled in thesis extension status for each subsequent semester until the thesis is completed. Graded Credit/No Credit. A thesis extension fee is charged (see fee schedule) for each semester of thesis extension.

This course involves a great deal of independent work by the student, as well as period meetings with the thesis advisor for direction. Each student will be assigned 2 additional faculty members to serve on the thesis committee. These committee members will read and comment on the thesis proposal as well as the final thesis draft, and will attend and provide feedback on the oral defense of the thesis. Together, the three professors will determine if the student earns the credit and is awarded the final thesis unit.

COURSE LEARNING OUTCOMES (one for each unit of BIO 683)

- BIO683a: Prepare proposal (including purpose, question(s), theory, methodology, and lit review), and clear project proposal with committee
- BIO683b: Finalize protocols and write, then submit IRB proposal
- BIO683c: Collect data
- BIO683d: Analyze data, and write results section
- BIO683e: Write conclusions and finalize thesis report
- BIO683f: Prepare and submit journal manuscript, and give oral defense of project

PROGRAM LEARNING OUTCOMES ASSESSED IN THIS COURSE

Three of the four PLO's will be assessed by three professors using the rubric at the end of this document upon completion of the thesis project:

1. Discuss major concepts and theories in biology. (Row 3)
2. Carry out and communicate various experimental methods and types of data analysis. (Rows 4, 5)
3. Demonstrate knowledge and skills in critical thinking, such as analysis and synthesis, as applied to primary literature in the field of biology, as well as in science education. (Rows 2, 6)

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

Incompletes will only be assigned under extremely unusual circumstances.

There are no required textbooks or supplies for this course, but the document "PLNU Biology Thesis Guidelines" provides detailed information as to how the thesis work should be done. It is important that students read these guidelines before beginning their thesis, and then refer to the document as their work progresses. This document is included in the online student handbook for the biology program.

GRADING

Credit/No credit is assigned based on the satisfactory completion of unit as described above; no letter grades are given.

INCOMPLETES

Incompletes will only be assigned under extremely unusual circumstances.

SPIRITUAL CARE

PLNU strives to be a place where you grow as a whole person. To this end we provide resources for our graduate students to encounter God and grow in their Christian faith. At the Mission Valley campus we have an onsite chaplain, Rev. Nancy Pitts, who is available during class break times throughout the week. If students have questions, a desire to meet with Rev Pitts or prayer requests you can contact her directly at gradchaplainmissionvalley@pointloma.edu. In addition there are resources for your Christian faith journey available at <http://www.pointloma.edu/experience/faith/graduate-student-spiritual-life>

PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See Academic Policies in the Graduate and Professional Studies Catalog for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY

If you have a diagnosed disability, please contact Jean Moncada in the Center for Student Success (CSS) within the first two weeks of class to demonstrate need and to register for accommodation by phone at (619) 563-2849 or by e-mail at jmoncada@pointloma.edu. Ask your academic advisor or program director for any additional accommodation information.

PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If the student is absent from more than 10 percent of class meetings, the faculty member can file a written report which may result in de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive the appropriate grade for their work and participation. See Academic Policies in the Graduate and Professional Studies Catalog for additional detail.

Rubric for PLNU Graduate Biology program written thesis for assessment of PLO #1, 2, and 3 (rev. 06/15)

1. Discuss major concepts and theories in biology. (Row 3)
2. Carry out and communicate various experimental methods and types of data analysis. (Rows 4,5)
3. Demonstrate knowledge and skills in critical thinking, such as analysis and synthesis, as applied to primary literature in the field of biology, as well as in science education. (Rows 2, 6)

Component	Initial (70%)	Emerging (80%)	Developed (90%)	Highly Developed (100%)
Problem, question and/or hypothesis	<ul style="list-style-type: none"> • Fails to identify or summarize problem accurately • No indication of purpose of the research 	<ul style="list-style-type: none"> • Summarizes the problem, though some aspects are incorrect or confusing • Some indication of purpose of the research 	<ul style="list-style-type: none"> • Clearly identifies the problem • Clearly articulates the purpose of the research 	<ul style="list-style-type: none"> • Clearly identifies the problem as well as nuanced aspects or key details • Clearly articulates the purpose of the research, beyond the narrow field
Choice of and use of relevant literature	<ul style="list-style-type: none"> • References not appropriately integrated into the paper 	<ul style="list-style-type: none"> • Fewer than 35 references appropriately integrated into the paper 	<ul style="list-style-type: none"> • 35-50 references appropriately integrated into the paper 	<ul style="list-style-type: none"> • 50+ ref. appropriately integrated into paper
Knowledge of major biology theories	<ul style="list-style-type: none"> • Inadequate evidence of understanding of relevant biology concepts 	<ul style="list-style-type: none"> • Basic evidence of understanding of relevant biology concepts 	<ul style="list-style-type: none"> • Clear and adequate evidence of understanding of relevant biology concepts 	<ul style="list-style-type: none"> • Clear and comprehensive evidence of understanding of relevant biology concepts
Methods (data collection/anal)	<ul style="list-style-type: none"> • No explanation or justification of research design • Methodology is unclear and incomplete 	<ul style="list-style-type: none"> • Some explanation of research design, but no justification • Methodology is basic, but incomplete 	<ul style="list-style-type: none"> • Clearly explains research design, but no justification • Explains methodology 	<ul style="list-style-type: none"> • Clearly justifies and explains research design • Clearly explains methodology
Results	<ul style="list-style-type: none"> • Graphs and tables are poorly/inaccurately done • One or more pieces of data inaccurately interpreted in text with many opinion statements. 	<ul style="list-style-type: none"> • Graphs and tables are inaccurate/missing labels with some errors • Usually accurately summarizes tables and graphs in text with obvious opinions 	<ul style="list-style-type: none"> • Graphs and tables are adequate • Accurately summarizes the tables and graphs in text with some opinion 	<ul style="list-style-type: none"> • Graphs and tables are professional • Accurately summarizes the tables and graphs in text w/o opinion
Conclusion(s)	<ul style="list-style-type: none"> • Fails to identify conclusions, or conclusion is a simplistic summary • Conclusion presented as "proof" 	<ul style="list-style-type: none"> • Identifies conclusions and refers to some specific pieces of evidence • Does not relate conclusion to the broader field 	<ul style="list-style-type: none"> • Clearly links evidence with the conclusion • Minimal consideration of limitations 	<ul style="list-style-type: none"> • Clearly links evidence with the conclusion • Considers limitations of the study