Meeting days: TBA	**Instructor title and name:** Dianne Anderson
Meeting times: TBA	**Phone:** 619-849-2705
Meeting location: TBA	**E-mail:** dianneanderson@pointloma.edu
	Office: Rohr Science #146 **Office hours:** by appointment

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

This exam is required for students in the graduate program in general biology to complete their graduation requirements if the thesis option is not chosen. Credit/No Credit, 0 unit

COURSE LEARNING OUTCOMES and PROGRAM LEARNING OUTCOMES ASSESSED IN THIS COURSE

The Course Learning Outcomes are the first three PLO's for the program. These PLO's will be assessed by four professors using the rubric at the end of this document upon submission of the exam answers:
1. Discuss major concepts and theories in biology.
2. Carry out and communicate various experimental methods and types of data analysis.
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 leadership or learning in science and the history/philosophy of science.

GRADING

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

EXAM FORMAT AND GRADING

A student completing the MS non-thesis option in general biology will be required to write the MS exam following the completion of all course work and on a schedule agreed on by the student and Dr. Anderson. The exam will consist of three parts:

Part I: Analysis of research articles related to summer courses
Part II: Main ideas of four summer courses
Part III: Main ideas of the History & Philosophy of Science course and the Learning in Science OR Leadership in Science course

You will choose **three of the four required lab courses** to focus on in the exam, including at least one organismal course and one cell/molecular course (see categories below). Dr. Anderson will contact the appropriate professors to obtain one research article appropriate to each of the selected courses.

Organismal courses	Cell/molecular courses
Physiology of Plants & Animals	Developmental Biology
Marine Biology	Microbiology & Immunology
Evolutionary Biology	Genetics & Molecular Biology
Ecology of Plants & Animals	Cell Biology

Let Dr. Anderson know the following information:

1. Three summer courses on the exam
2. Start <u>date</u> of the exam (you may have up to 72 hours/3 days)
3. Start <u>time</u> of the exam (8AM, 12PM, 4PM or 8PM)

Your exam must be completed <u>at least 3 weeks</u> before the end of the quad or semester in which you are registered for BIO 6084 to allow enough time for review before the grading period ends. <u>If your work location has annual deadlines for submission of your posted degree for salary advancement, plan to complete your exam at least one month before that date. Also, due to faculty vacations in July/August, if the exam is completed between July 15-August 15, feedback may not be received in time for any revisions to be made in order to meet the August degree-posting date. This could result in the degree being posted in October.</u>

Both before and during the exam, you may consult course materials, textbooks, and internet sources (including to look up terms, etc.). You may only consult the program director, <u>not</u> other faculty members, students, or the authors of the research articles to clarify exam questions, article content, or exam instructions. You will e-mail your completed exam to Dr. Anderson.

Your completed exam will be assessed for clarity, accuracy, thoroughness, and use of appropriate vocabulary by the professors who taught the courses (see detailed rubric at the end of this document). Each professor will review the exam answers related to their course to determine if you earn the credit for that particular section. You will be notified by Dr. Anderson if either a) all sections passed or b) at least one section did not pass and will need to be resubmitted. Depending on the time of year, you can expect feedback in approximately 2 weeks. If the exam is submitted during PLNU holiday breaks (Thanksgiving, Christmas, and summer), this time will be extended as faculty members may be out of the office for part of the time.

If any sections do not pass, you will schedule a 48-hour period to rewrite the section(s) to address the deficiencies, and to resubmit that portion of the exam. If that resubmission does not pass, you will receive one additional chance to rewrite before the degree will be denied.

PLNU 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. We have an onsite chaplain, Rev. Gordon Wong, at the Mission Valley (MV) campus to service Graduate students at the Mission Valley, Balboa Campuses, and main PLNU campuses. Rev. Gordon Wong is available during class break times across the week. If you have questions for, desire to meet or share a prayer request with Rev. Wong you can contact him directly at mvchaplain@pointloma.edu or gordonwong@pointloma.edu. Rev. Wong's cell number is 808-429-1129 if you need a more immediate response.

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 the Academic Honesty Policy in the Graduate and Professional Studies Catalog for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities. Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center (EAC@pointloma.edu or 619-849-2486). Once a student's eligibility for an accommodation has been determined, the EAC will issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course and/or if they do not wish to utilize some or all of the elements of their AP in that course. Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC.

PLNU MS in General Biology Comprehensive Exam Rubric, Part I: Research article analysis

Row	Paper #	Aspect of answer	Initial (fail)	Emerging (fail)	Developed (pass)	Highly Developed (pass)
1	#1a	General relevance to field	Missing	Unclear	Clear, but not accurate or unclear, incomplete or lacks depth of analysis	Clear and accurate
2	#1a	General problem/ question	Missing	Unclear	Clear, but not accurate or incomplete	Clear and accurate
3	#1a	1st major claim	Identified claim is inaccurate or not important	Identified claim is inaccurate or incomplete or lacks depth	Accurately identified claim, but not a main claim	Accurately identified the one of most important claims
4	#1a	Evidence	Specific data is not identified or does not match the claim; no evidence	Relevant tables, figures, etc. are mentioned but no specific areas; 1 piece of evidence	Specific areas of relevant figures, tables, etc. are correctly identified; 2 pieces of evidence	Specific areas of relevant figures, tables, etc. are correctly identified; 2+ pieces of evidence
5	#1a	Justification	Justification missing for claim	Weak attempt made to justify claim, but inaccurate, incomplete, or unclear	Justification given for why data supports the claim, but not clear or incomplete	Clear justification as to why the data supports the claim
6	#1a	Methods	Methods missing AND not in own words	Missing some major methods OR not in own words	Major methods identified in own words, but unclear	Relevance of major methods clearly explained
7	#1b	2nd major claim	Identified claim is inaccurate or not important	Identified claim is inaccurate or incomplete or lacks depth	Accurately identified claim, but not a main claim	Accurately identified the one of most important claims
8	#1b	Evidence	Specific data is not identified or does not match the claim	Relevant tables, figures, etc. are mentioned but no specific areas	Specific areas of relevant figures, tables, etc. are correctly identified	Specific areas of relevant figures, tables, etc. are correctly identified
9	#1b	Justification	Justification missing for claim	Weak attempt made to justify claim, but inaccurate, incomplete, or unclear	Justification given for why data supports the claim, but not clear or incomplete	Clear justification as to why the data supports the claim
10	#1b	Methods	Methods missing	Missing some major methods OR not in own words	Major methods identified in own words, but unclear	Major methods clearly identified in own words
11	#2a	General relevance to field	Missing	Unclear	Clear, but not accurate or unclear, incomplete or lacks depth of analysis	Clear and accurate
12	#2a	General problem/ question	Missing	Unclear	Clear, but not accurate or incomplete	Clear and accurate
13	#2a	1st major claim	Identified claim is inaccurate or not important	Identified claim is inaccurate or incomplete or lacks depth	Accurately identified claim, but not a main claim	Accurately identified the one of most important claims
14	#2a	Evidence	Specific data is not identified or does not match the claim	Relevant tables, figures, etc. are mentioned but no specific areas	Specific areas of relevant figures, tables, etc. are correctly identified	Specific areas of relevant figures, tables, etc. are correctly identified
15	#2a	Justification	Justification missing for claim	Weak attempt made to justify claim, but inaccurate, incomplete, or unclear	Justification given for why data supports the claim, but not clear or incomplete	Clear justification as to why the data supports the claim

16	#2a	Methods	Methods missing	Missing some major methods OR not in own words	Major methods identified in own words, but unclear	Major methods clearly identified in own words
17	#2b	2nd major claim	Identified claim is inaccurate or not important	Identified claim is inaccurate or incomplete or lacks depth	Accurately identified claim, but not a main claim	Accurately identified the one of most important claims
18	#2b	Evidence	Specific data is not identified or does not match the claim	Relevant tables, figures, etc. are mentioned but no specific areas	Specific areas of relevant figures, tables, etc. are correctly identified	Specific areas of relevant figures, tables, etc. are correctly identified
19	#2b	Justification	Justification missing for claim	Weak attempt made to justify claim, but inaccurate, incomplete, or unclear	Justification given for why data supports the claim, but not clear or incomplete	Clear justification as to why the data supports the claim
20	#2b	Methods	Methods missing AND not in own words	Missing some major methods OR not in own words	Major methods identified in own words, but unclear	Major methods clearly identified in own words
21	#3a	General relevance to field	Missing	Unclear	Clear, but not accurate or unclear, incomplete or lacks depth of analysis	Clear and accurate
22	#3a	General problem/question	Missing	Unclear	Clear, but not accurate or incomplete	Clear and accurate
23	#3a	1st major claim	Identified claim is inaccurate or not important	Identified claim is inaccurate or incomplete or lacks depth	Accurately identified claim, but not a main claim	Accurately identified the one of most important claims
24	#3a	Evidence	Specific data is not identified or does not match the claim	Relevant tables, figures, etc. are mentioned but no specific areas	Specific areas of relevant figures, tables, etc. are correctly identified	Specific areas of relevant figures, tables, etc. are correctly identified
25	#3a	Justification	Justification missing for claim	Weak attempt made to justify claim, but inaccurate, incomplete, or unclear	Justification given for why data supports the claim, but not clear or incomplete	Clear justification as to why the data supports the claim
26	#3a	Methods	Methods missing AND not in own words	Missing some major methods OR not in own words	Major methods identified in own words, but unclear	Major methods clearly identified in own words
27	#3b	2nd major claim	Identified claim is inaccurate or not important	Identified claim is inaccurate or incomplete or lacks depth	Accurately identified claim, but not a main claim	Accurately identified the one of most important claims
28	#3b	Evidence	Specific data is not identified or does not match the claim	Relevant tables, figures, etc. are mentioned but no specific areas	Specific areas of relevant figures, tables, etc. are correctly identified	Specific areas of relevant figures, tables, etc. are correctly identified
29	#3b	Justification	Justification missing for claim	Weak attempt made to justify claim, but inaccurate, incomplete, or unclear	Justification given for why data supports the claim, but not clear or incomplete	Clear justification as to why the data supports the claim
30	#3b	Methods	Methods missing AND not in own words	Missing some major methods OR not in own words	Major methods identified in own words, but unclear	Major methods clearly identified in own words

PLNU MS in General Biology Comprehensive Exam Rubric: Description of summer course major concepts

Row	Summer course	Aspect of answer	Initial (fail)	Emerging (fail)	Developed (pass)	Highly Developed (pass)
31	#1	Choice of topic	Topic not addressed in course	Topic of minor importance in course	One of several main topics from course	Clearly a central topic from course
32	#1	Topic description	Inaccurately described	Accurately described, with minimal/no use of course vocabulary, or somewhat inaccurate	Accurately described, with some use of vocabulary from the course	Accurately described using appropriate vocabulary from the course
33	#2	Choice of topic	Topic not addressed in course	Topic of minor importance in course	One of several main topics from course	Clearly a central topic from course

34	#2	Topic description	Inaccurately described	Accurately described, with minimal/no use of course vocabulary, or somewhat inaccurate	Accurately described, with some use of vocabulary from the course	Accurately described using appropriate vocabulary from the course
35	#3	Choice of topic	Topic not addressed in course	Topic of minor importance in course	One of several main topics from course	Clearly a central topic from course
36	#3	Topic description	Inaccurately described	Accurately described, with minimal/no use of course vocabulary, or somewhat inaccurate	Accurately described, with some use of vocabulary from the course	Accurately described using appropriate vocabulary from the course
37	#4	Choice of topic	Topic not addressed in course	Topic of minor importance in course	One of several main topics from course	Clearly a central topic from course
38	#4	Topic description	Inaccurately described	Accurately described, with minimal/no use of course vocabulary, or somewhat inaccurate	Accurately described, with some use of vocabulary from the course	Accurately described using appropriate vocabulary from the course

PLNU MS in General Biology Comprehensive Exam Rubric: Question about major course concepts

Row	Course	Initial (fail)	Emerging (fail)	Developed (pass)	Highly Developed (pass)
39	History & Philosophy of Science	Answer incomplete AND inaccurate	Answer incomplete OR inaccurate	Answer accurate and complete, using some appropriate vocabulary from the course	Answer accurate, complete, and well written using appropriate vocabulary from the course
40	Leadership in Science OR Learning in Science	Answer incomplete AND inaccurate	Answer incomplete OR inaccurate	Answer accurate and complete, using some appropriate vocabulary from the course	Answer accurate, complete, and well written using appropriate vocabulary from the course