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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**

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 two lab 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 **two of the four required lab courses** to focus on in the exam, 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 Marine Biology Evolutionary Biology Ecology of Plants & Animals	Developmental Biology Microbiology & Immunology Genetics & Molecular Biology Cell Biology

Let Dr. Anderson know the following information:

1. The two lab courses you have chosen for your the exam
2. Start date of the exam (you may have up to 72 hours/3 days)
3. Start time of the exam (8AM, 12PM, 4PM or 8PM)

Your exam must be completed at least 2 weeks 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. 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.

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, not other faculty members, students, AI software, 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. All answers must be submitted without grammatical errors or typos, and will be assessed using the rubric at the end of this syllabus.

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 right before or 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.

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## GENERAL PLNU POLICIES

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### PLNU Spiritual Care

#### Balboa Campus:

PLNU strives to be a place where you grow as whole persons. To this end, we provide resources for our graduate students to encounter God and grow in their Christian faith. At the Balboa campus, we have an onsite chaplain, Rev. Kevin Portillo, who is available during class break times across the week. If you have questions, a desire to meet or share any prayer requests with Rev. Portillo, you may contact him directly at [KevinPortillo@pointloma.edu](mailto:KevinPortillo@pointloma.edu).

#### Liberty Station Campus:

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 Liberty Station campus we have an onsite chaplain, Rev. Dave Hazel, who is available during class break times across the week. If you have questions, a desire to meet or share any prayer requests with Rev. Hazel, you may contact him directly at [dhazel@pointloma.edu](mailto:dhazel@pointloma.edu) or feel free to call or text (913-231-3975).

#### Mission Valley:

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 (MV) campus we have an onsite chaplain who is available during class break times across the week. If you have questions for, a desire to meet or share any prayer requests with the onsite chaplain, you may email them at [mcvhaplain@pointloma.edu](mailto:mcvhaplain@pointloma.edu).

In addition, on the MV campus there is a prayer chapel on the third floor. It is open for use as a space set apart for quiet reflection and prayer.

### 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 [Graduate Academic and General Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

**Note:** Additionally, include the below if this pertains to your course:

During the first week of class, you will be asked to submit an Academic Honesty Verification Statement. Submitting the statement is a requirement of this course. By submitting the Academic Honesty Verification Statement, you will be verifying all assignments completed in this course were completed by you. Carefully review the Academic Honesty Statement below.

Statement: "In submitting this form, I am verifying all the assignments in this course will be completed by me and will be my own work."

### **Artificial Intelligence (AI) Policy**

Use of Artificial Intelligence (AI) tools (e.g., ChatGPT, iA Writer, Marmot, Botowski) is not permitted, and use of these tools will be treated as plagiarism.

### **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](mailto: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.

### **Language and Belonging**

Point Loma Nazarene University faculty are committed to helping create a safe and hospitable learning environment for all students. As Christian scholars we are keenly aware of the power of language and believe in treating others with dignity. As such, it is important that our language be equitable, inclusive, and prejudice free. Inclusive/Bias-free language is the standard outlined by all major academic style guides, including MLA, APA, and Chicago, and it is the expected norm in university-level work. Good writing and speaking do not use unsubstantiated or irrelevant generalizations about personal qualities such as age, disability, economic class, ethnicity, marital status, parentage, political or religious beliefs, race, gender, sex, or sexual orientation. Inclusive language also avoids using stereotypes or terminology that demeans persons or groups based on age, disability, class, ethnicity, gender, race, language, or national origin. Respectful use of language is particularly important when referring to those outside of the religious and lifestyle commitments of those in the PLNU community. By working toward precision and clarity of language, we mark ourselves as serious and respectful scholars, and we model the Christ-like quality of hospitality.

You may report an incident(s) using the [Bias Incident Reporting Form](#).

### **Sexual Misconduct and Discrimination\***

In support of a safe learning environment, if you (or someone you know) have experienced any form of sexual discrimination or misconduct, including sexual assault, dating or domestic violence, or stalking, know that accommodations and resources are available through the Title IX Office at [pointloma.edu/Title-IX](http://pointloma.edu/Title-IX). Please be

aware that under Title IX of the Education Amendments of 1972, faculty and staff are required to disclose information about such misconduct to the Title IX Office.

If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact Counseling Services at [counselingservices@pointloma.edu](mailto:counselingservices@pointloma.edu) or find a list of campus pastors at [pointloma.edu/title-ix](http://pointloma.edu/title-ix).

## **PLNU Attendance and Participation Policy**

Regular and punctual attendance at all class sessions is considered essential to optimum academic achievement. Therefore, regular attendance and participation in each course are minimal requirements.

If the student is absent for more than 10 percent of class sessions, the faculty member will issue a written warning of de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university withdrawal date or, after that date, receive an “F” grade.

Students who anticipate being absent for an entire week of a course should contact the instructor in advance for approval and make arrangements to complete the required coursework and/or alternative assignments assigned at the discretion of the instructor. Acceptance of late work is at the discretion of the instructor and does not waive attendance requirements.

Refer to [Academic Policies](#) for additional detail.

### **Synchronous Attendance/Participation Definition**

For synchronous courses that have specific scheduled meeting times (including in-person, hybrid, and synchronous online courses), absences are counted from the first official meeting of the class regardless of the date of the student’s enrollment. For courses with specific attendance requirements, those requirements are outlined in the course syllabus.

### **Online Asynchronous Attendance/Participation Definition**

Students taking online courses with no specific scheduled meeting times are expected to actively engage throughout each week of the course. Attendance is defined as participating in an academic activity within the online classroom which includes, but is not limited to:

- Engaging in an online discussion
- Submitting an assignment
- Taking an exam
- Participating in online labs
- Initiating contact with faculty member within the learning management system to discuss course content

Note: Logging into the course does not qualify as participation and will not be counted as meeting the attendance requirement.

## **Use of Technology**

In order to be successful in the online or hybrid environment, you'll need to meet the minimum technology and system requirements; please refer to the [Technology and System Requirements](#) information. Additionally, students are required to have headphone speakers, microphone, or webcams compatible with their computer

available to use. Please note that any course with online proctored exams requires a computer with a camera (tablets are not compatible) to complete exams online.

Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.

### **GPS Academic Resources**

PLNU offers the following free academic resources virtually for Graduate Professional Studies (GPS) Students. Visit myPLNU through the links below for more information.

- [The GPS Writing Center](#) offers:
  - **Zoom Writers Workshops** offered each quad on a variety of helpful topics
  - **One-to-one appointments** with the Writing Coach
  - **Microlearning YouTube Video Library** for helpful tips anytime
  - [Research Help Guide](#) to help you start your research
  - The physical office is located on the third floor of the [Mission Valley Regional Center](#) off the student lounge
- [Academic Writing Resources Course](#): Found on your Canvas Dashboard, this course is non-credit with 24/7 access, no time limits, and self-paced content. [Watch a quick video run-through](#) and take time now to explore!
- [Tutoring](#): Students have access to 24/7 live or scheduled subject tutoring through Tutor.com, including a Paper Drop-Off Service with feedback within 12 hours.

We are here to support you! Contact us anytime: [GPSWritingCenter@pointloma.edu](mailto:GPSWritingCenter@pointloma.edu)

**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	1 <sup>st</sup> 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	2 <sup>nd</sup> 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	1 <sup>st</sup> 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	2 <sup>nd</sup> 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

**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