Spring 2025 | Quad II

Fully Online

March 17 - May 11

Meeting Days/ Times: Online Asynchronous

Meeting Location: Online

Final Exam: (Day/Time): Week 8 on Friday

Instructor: Dr. Paul Silva

Email: psilva@pointloma.edu

Office Location and Hours: Zoom, 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 is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

GENERAL EDUCATION MISSION

PLNU provides a foundational course of study in the liberal arts informed by the life, death, and resurrection of Jesus Christ. In keeping with the Wesleyan tradition, the curriculum equips students with a broad range of knowledge and skills within and across disciplines to enrich major study, lifelong learning, and vocational service as Christ-like participants in the world's diverse societies and cultures.

COURSE DESCRIPTION

This course is an introduction to foundational concepts in biology with an examination of current topics in biotechnology as they impact society, bioethics, and sustainable living. The course addresses the questions "What is biotechnology?", "How does it work?", and "How does it affect our lives?" Topics include genetic engineering, gene therapy, DNA fingerprinting, cloning, genetically modified organisms, antibiotic resistance, and biotechnologies related to SARS-CoV2/COVID-19 (e.g. mRNA vaccine technology). This course approach

emphasizes the process of science, critical thinking, active learning, social relevancy, and building connections between case studies and general concepts of biology.

Since the student will need to understand the basic principles of science and biology in order to understand biotechnology, part of the course is conducted with the aid of a Pearson learning system for general biology. Early on, the student will need to gain some basic familiarity with this system: MyLab and Mastering. Detailed instructions are given in the course of how this can be initiated in the Course Introduction module under Tips for Mastering Biology Textbook. Most students will need to sign up for this (purchase it) by clicking on the Access Pearson tab in the left-hand column of the Canvas course. By signing up for the online learning system, the students will also receive access to the biology online textbook. As the student progresses through the course, when needed, it is also best to enter the Pearson learning system through the links in the Canvas course or the Access Pearson tab in the left-hand column of the Canvas course, rather than trying to get to the Pearson website outside of our course."

COURSE LEARNING OUTCOMES

Upon completing the course, you should be able to:

1. Articulate and synthesize ideas and information to others through written communication (FELO 1a)
2. Access and cite scientific information as well as evaluate the logic, validity, and relevance of information from a variety of sources (FELO 1c)
3. Examine and critique scientific information in order to arrive at reasonable conclusions (FELO 1d)
4. Solve problems that are quantitative in nature (FELO 1e)
5. Describe the function of DNA in the cell and how it is regulated, processed, and synthesized (FELO 1a)
6. Explain various methods utilized in biotechnology and understand how scientific methods can be applied to improve the health of individuals and sustain our environment (FELO 1a, c, d, e)

GENERAL EDUCATION LEARNING OUTCOMES

- FELO 1a. Written: Students will be able to effectively express ideas and information to others through written communication.
- FELO 1c. Information Literacy: Students will be able to access and cite information as well as evaluate the logic, validity, and relevance of information from a variety of sources.
- FELO 1d. Critical Thinking: Students will be able to examine, critique, and synthesize information in order to arrive at reasoned conclusions.
- FELO 1e. Quantitative Reasoning: Students will be able to solve problems that are quantitative in nature.

INSTITUTIONAL LEARNING OUTCOMES

1. **Learning, Informed by our Faith in Christ**
   Students will acquire knowledge of human cultures and the physical and natural world while developing skills and habits of the mind that foster lifelong learning.
2. **Growing, in a Christ-centered Faith Community**
   Students will develop a deeper and more informed understanding of others as they negotiate complex professional, environmental, and social contexts.
3. **Serving, in a Context of Christian Faith**
   Students will serve locally and/or globally in vocational and social settings.

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

There are **two** resources requiring purchase for this course: a textbook (or e-book) and access to Mastering Biology online through Pearson. These can be purchased as standalone products, or together (i.e. modified mastering WITH Pearson e-text)

Belk, C. & Maier, V. (2016). *Biology: Science for Life with Physiology*. 6th edition. Upper Saddle River, NJ: Pearson.

- Note: E-textbook or Print Version

Note: Students are responsible for having the required textbooks prior to the first day of class. Students are also encouraged to begin reading the books in preparation for the class as soon as possible.

COURSE CREDIT HOUR INFORMATION

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit hour policy for a 3-unit class delivered over 8 weeks. It is anticipated that students will spend a minimum of 37.5 participation hours per credit hour on their coursework. For this course, students will spend an estimated 112.5 total hours meeting the course learning outcomes. Weekly time estimations are provided in the Canvas modules.

Since this is a 3-unit course conducted over 8 weeks, there is much content to cover. In order to do well in the course, it will be important for the student to keep up with the pace of the course including the assignments.

Credit Hours

Assignment Type	Estimated Hours
Readings	37
Homework	15
Assignments	20
Quizzes	10
Discussions	10
Project	10
Exams	10
Total	**112.5**

ASSESSMENT AND GRADING

This course uses weighted grades. Each assignment category is worth a certain percentage of the total grade (100%) for the course, as specified in the table below:

Course Assignments

Assignment Category	Percent (%)
Assignment	10
Discussion	10
Homework	10
Current Event	10
Quizzes	10
Covid - 19 Project	15

Exams	35
Total	**100**

Readings and Lecture Videos - Selected readings from the textbook will be supplemented by video lectures and other instructional course materials to be posted on Canvas. All course materials are delivered asynchronously. Students are expected to review reading and lecture materials for that week on the days indicated on the course schedule (typically Tuesday). Each week, a detailed overview of selected readings, lectures, and all assignments for the week will be posted on Canvas.

Homework – All homework assignments are due by 11:59 PM PST on the scheduled due date. All homework prompts will be posted on Canvas, including links to the Pearson MasteringBiology assignment.

Life Application Assignments – These weekly assignments (10 points each) involve a brief reading (scripture, poem, etc) and an introspective reflection by the student. They are designed to encourage thoughtful exploration of one's own faith and lived experiences within the context of the course.

Current Events - These one-page write-ups are worth 50 points each. You can find any recent article from a reputable newspaper or media publication (NY Times, LA Times, Scientific American, JAMA, STATnews, etc.) that addresses an issue in biotechnology. The questions you should address in your write-up are posted on Canvas. It is best to use summary or review articles rather than original research articles since original research articles are generally highly technical and difficult for nonspecialists in the field to readily understand.

Quizzes (100 points) - You will have an opportunity to answer a few multiple-choice questions related to the course material (n=10, 10 points each), an initial state authorization verification survey, and a final quiz on the peer-teaching projects. The quizzes are open notes and are to be conducted on Canvas with a time limitation.

Discussion Activities - These weekly small group discussion activities involve group work related to the course material and problem-solving to be conducted on Canvas discussion boards. Discussion activities (n=6, 20 points each) typically involve an initial post and engagement/responses to other students that same week (10 points). No credit may be given for late discussion board responses to peers after the time that the discussion board is due"

COVID-19 Peer Teaching Assignment - You will work in groups to examine a specialized topic related to COVID-19 and relevant biotechnologies. Your group will present it to the rest of the class by creating and posting a slide deck (e.g., PowerPoint or Google Slides) of your topic into a discussion in Canvas, thus teaching them this specialized topic." You will prepare instructional materials (with visual aids) with your group on Canvas (100 points). Additionally, your peer teaching participation will be evaluated by your group members via a peer teaching assessment form (20 points). Thorough instructions can be found on Canvas. Topics are all related to COVID-19 and include mRNA vaccines, tests for identifying SARS-CoV2, etc. Brief (~15 min) one-on-one meetings (via Zoom) between each student group and the instructor will be held to provide instructor support and feedback for students as they develop their peer teaching materials.

Exams – All exams will be conducted on Canvas, are open notes, and are cumulative. You can expect 100 points to be based on the new material, and the remainder of the points to be based on previous material. Exam 1 (Week 3) is worth 100 pts, Exam 2 (Week 6) is worth 120 pts, and the Final Exam (Week 8) is worth 150 pts.

Extra Credit – Extra Credit assignments will be made available throughout the course. Completion of relevant chapter study modules from the textbook will earn extra credit points toward the exam. Additional extra credit opportunities covering topics in biotechnology and society will be made available throughout the course to earn extra credit points toward the final grade. All extra credit opportunities will be completed on Canvas by 11:59 PM PST on the assigned due date

Student grades for assignments will be posted in the Canvas gradebook no later than midnight on Tuesday of each week beginning in Week Two of this course. It is important to read the comments posted in the gradebook as these comments are intended to help students improve their work. Final grades will be posted by the due date as posted in the Academic Calendar.

Grades will be based on the following:

A	B	C	D	F
A 93-100	B+ 87-89	C+ 77-79	D+ 67-69	F Less than 59
A- 90-92	B 83-86	C 73-76	D 63-66	
	B- 80-82	C- 70-72	D- 60-62	

INCOMPLETES AND LATE ASSIGNMENTS

All assignments are to be submitted by the due dates posted. There may be a reduction of 10% of possible points for each day an assignment is late. If missing assignments result in your failure to meet learning outcomes, this instructor may give up to a letter grade reduction on the final grade in addition to the loss of points for missing work. No assignments will be accepted after midnight on the last week of class. There are no extensions beyond this final day and receiving an incomplete is not an option in a fully online course.

While there are due dates for weekly assignments, you are welcome to post your work earlier in the week. In our discussions, late work means that others may not have the opportunity to respond to your comments. It also means that you will not have the benefit of as much interaction with other students as you will have if your assignment is posted on time. If you know you will be away on the day your assignment is due, please post your work before you leave.

Assignments will be considered late if posted after midnight Pacific Standard Time on the day they are due.

PLNU SPIRITUAL CARE

Please be aware that PLNU strives to be a place where you grow as a whole person. To this end, we provide resources for our students to encounter God and grow in their Christian faith.

If you have questions, prayer requests, or a desire to meet with the chaplain, you can contact your professor or the Office of Spiritual Life and Formation.

STATE AUTHORIZATION

State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on State Authorization to view which states allow online (distance education) outside of California.

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 RECORDING NOTIFICATION

In order to enhance the learning experience, please be advised that this course may be recorded by the professor for educational purposes, and access to these recordings will be limited to enrolled students and authorized personnel.

Note that all recordings are subject to copyright protection. Any unauthorized distribution or publication of these recordings without written approval from the University (refer to the Dean) is strictly prohibited.

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.

For all student appeals, faculty and students should follow the procedures outlined in the University Catalog. See [Academic Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

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

You are allowed to use Artificial Intelligence (AI) tools (e.g., ChatGPT, Gemini Pro 1.5, GrammarlyGo, Perplexity, etc) to generate ideas, but you are not allowed to use AI tools to generate content (text, video, audio, images) that will end up in any work submitted to be graded for this course. If you have any doubts about using AI, please gain permission from the instructor.

PLNU ACADEMIC ACCOMMODATIONS POLICY

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities in accordance with the Americans with Disabilities Act (ADA). 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 accommodation has been determined, the EAC will work with the student to create an Accommodation Plan (AP) that outlines allowed accommodations. The EAC makes accommodations available to professors at the student's request.

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. Accommodations are not retroactive, so clarifying with the professor at the outset is one of the best ways to promote positive academic outcomes.

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 ensure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC. Students cannot assume that because they had accommodations in the past, their eligibility at PLNU is automatic. All determinations at PLNU must go through

the EAC process. This is to protect the privacy of students with disabilities who may not want to disclose this information and are not asking for any special accommodations.

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.

If you (or someone you know) have experienced a bias incident regarding language, you can find more information on reporting and resources at www.pointloma.edu/bias.

SEXUAL MISCONDUCT AND DISCRIMINATION

Point Loma Nazarene University faculty are committed to helping create a safe learning environment for all students. 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 help and support are available through the Title IX Office. Please be aware that under Title IX of the Education Amendments of 1972, it is 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 or find a list of campus pastors via our Sexual Harassment and Discrimination Policy.

If you (or someone you know) have experienced other forms of discrimination or bias, you can find more information on reporting and resources via our Nondiscrimination and Anti-harassment Policy.

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 details.

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.

Note: For synchronous courses with an online asynchronous week, refer to the Online Asynchronous Class Attendance policy listed below.

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 members 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.

COURSE MODALITY DEFINITIONS

1. Online Courses: These are courses with class meetings where all instruction and interaction are fully online.
   1. Synchronous Courses: At least one class meeting takes place at a designated time.
   2. Asynchronous Courses: All class meetings are asynchronous.
2. Hybrid Courses: These are courses with class meetings that take place both in the classroom and online synchronously and/or asynchronously.
3. In-Person Courses: These are courses that meet in person with the instructor and students in a physical classroom setting. With approval by the area dean, this may include up to 25% of qualified class interactions through a Learning Management System (such as Canvas).

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 nor allowable) 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 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!
- Grammarly: Students have unlimited FREE access to Grammarly for Education, a trusted tool designed to help enhance writing skills by providing real-time feedback, identifying areas for improvement, and providing suggestions. Grammarly's Generative AI is NOT available with our student accounts.
- **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.

ASSIGNMENTS AT-A-GLANCE

The course summary below lists our assignments and their due dates. Click on any assignment to review it.