



Biology Department/School of STEM

BIO4097 Biology Senior Seminar

1 Unit

Fall 2026

Wednesdays 1:30 - 2:30pm

Ryan Learning Center 103

NO FINAL EXAM

INFORMATION	SPECIFICS FOR THE COURSE
Instructor title and name:	Dr. Heidi Woelbern
Phone:	619-849-2925
Email:	heidiwoelbern@pointloma.edu
Office location and hours:	Mondays 8:30 – 9:30 (Rohr Science 164) Thursdays 9:00 – 10:30 (on Zoom – use this link) Fridays 8:30 – 9:30 (Rohr Science 164)

“Science can only ascertain what is, but not what should be, and outside of its domain value judgments of all kinds remain necessary.” --- Albert Einstein

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

Examination and discussion of selected biological issues with an emphasis on the relationship between Christian faith and scientific study. The course is to be taken by Biology, Biology-Chemistry and Environmental Science majors during their last year prior to graduation. (1 unit)

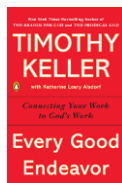
Prerequisite(s): Senior standing as a Biology, Biology-Chemistry or Environmental Science major

Introduction to the course

This course is, in many respects, a capstone to your college experience in one of the majors offered by the

biology department. The discussion format that will be used extensively in this course would not work without the background that you have developed in the courses within your major. As we examine issues within the themes of evolution, creation care, and general bioethical topics, we will emphasize the relationship between Christian faith and scientific study. The quality and direction of our discussions will largely be the responsibility of you, the students. In addition to the discussions, you will write a summative essay that addresses your thoughts on either evolution/creation or environmental stewardship (your choice). We will also discuss practical topics relevant to your transition from PLNU, including practice writing a CV and cover letter, interviewing, and exploring vocational topics.

Required Texts



Every Good Endeavor: Connecting Your Work to God's Work (2014) by Timothy Keller. The appropriate chapters will be provided for you.

Course learning outcomes

1) Analyze, critically evaluate, and discuss ideas, arguments, and differing points of view on various topics at the intersection of science, faith, and morality.

We will be discussing ideas from a variety of perspectives. In doing so, we want to be hospitable to the ideas of others, recognizing that through discourse we can learn from and better understand each other as we respectfully challenge ideas and allow our own thinking to be challenged.

2) Construct a defensible position on issues of science and faith in both written and oral formats.

As part of your training here at PLNU, you have been exposed to various topics that integrate faith and science. Hopefully, through personal reflection, you have arrived at your own definition of 'truth' with regard to some of these issues (although this definition of 'truth' will continue to evolve throughout your life). It is important that you can articulate this view in such a way that you can explain and defend your position. This includes fully summarizing your own thoughts, addressing alternative views, and then being able to explain/defend your thoughts to others in a clear and organized manner. This will allow you to hold strong to your values while demonstrating grace and respect towards others' differing viewpoints.

3) Acquire skills in working with others as a member of a team.

For the discussions, you will be assigned to a team. However, each person in the team should be prepared to present his/her own portion of the presentation. You will be evaluated on the quality of the presentation, including (a) how well your portion flows (beginning to end) and (b) the accuracy and thoroughness of the content. However, you should also work together with your team so that the 2 or 3 portions (teams will be groups of 2-3) also flow well together. No matter what your career and life goals entail, you will frequently need to work effectively in a group setting. Good teamwork involves every person contributing. If tasks are assigned and one person does not do their part, the whole group suffers. If one person always wants to take charge and run the show, others can feel frustrated or diminished. Leadership does need to occur, but collaboration and compromise are important skills to develop for effective group work. Don't let your teammates down. **A major portion (20%) of the presentation grade will be based on adequate participation, preparation, and ability to work with your team (as assessed by evaluations of your peers).**

Biology department and PLNU assessment as part of the course

Some of the course assignments, including one standardized exam, will also be used as pieces of evidence for the assessment of the effectiveness of both the biology department program in terms of helping students to achieve departmental learning outcomes (PLO) and PLNU as a whole (as evidenced by demonstration of core competencies) as required by the university accrediting agency. These assessment purposes and corresponding assignments/exams are shown in the table below. These assignments and exams are required as part of your grade. You will receive points for meeting a minimum score on the Bio-MAPS assessment. Students who fail to take the assessment seriously and who score below a reasonable minimum will be required to complete a written analysis of a journal article to pass this course. The analysis would likely take 4-5 hours to complete.

Assessment purpose	Corresponding assignment/exam
Core competency: Written communication	Science/faith essay
Core competency: Oral communication	Oral presentation on bioethical issue
Core competency: Information literacy	Information Literacy Assignment: Use of sources Oral presentation annotated bibliography
Core competency: Critical thinking	Science/faith essay Graphing assignment
Core competency: Quantitative reasoning	Graphing assignment
PLO #1: Biology content knowledge	GenBio-MAPS assessment
PLO #2: Department participation	Survey of participation
PLO #3: Rationally defensible integration of science and faith	Science/faith essay
PLO #4: Preparation for the future	Survey of participation

Attendance, participation, and academic honesty policies

Class attendance will be kept, and the school's policies will be enforced as outlined in the academic handbook and according to the policy attached at the end of this syllabus. Since this is a participation course, your attendance is VERY important. You can see that attendance, participation, and attitude during these discussions are a major portion of your total grade (20%). Please communicate regarding any planned absences. Since the class only meets once a week, with 2 absences, I must contact the Vice-Provost for Academic Administration to report your absences, and at 3 absences, you will be dropped from the course for non-attendance unless an exception is granted by the administration. There will generally be no makeup opportunities for discussion or participation points. All missed assignments and classes will result in a zero grade.

The key to participation in the class discussions is not to wait until the last minute to do your reading. If you try to participate without having read the material, everyone will know (it will be obvious). This is the purpose of having the pre-discussion questions/material due before our discussion—so that you can reflect on the material and actively take part in the dialogue during class.

Important dates: Last day to add/drop: September 11, 2026

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 1-unit class delivered over 15 weeks. For this course, students will spend an estimated 38 total hours meeting the course learning outcomes.

Grading: (approximate point distribution)

Science and Faith Reflection Essay (<i>Evolution or Environmental Stewardship</i>)	100 points
Bioethics Discussion and Presentation (<i>including peer evaluation</i>)	105 points
CV/Resume/LinkedIn and Cover letter	25 points
Information Literacy Assignment: Use of sources	25 points
Discussion / reading questions	80 points
Class participation and attitude	50 points
Quantitative assessment (graphing assignment)	25 points
GenBio-MAPS minimum score	25 points
Completion of Biology participation survey	10 points
Syllabus verification	5 points
TOTAL	450 points

Grade calculation

A 92-100%	A- 90-91%	B+ 88-89%	B 82-87%	B- 80-81%	C+ 78-79%
C 72-77%	C- 70-71%	D+ 68-69%	D 62-67%	D- 60-61%	F 59% or less

All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas. Assignments submitted up to 24 hours late may earn up to 50%, but no credit is available after 24 hours. Incompletes will only be assigned in extremely unusual circumstances.

Science and Faith Reflection Essay

The reasons the biology department assigns this essay are 4-fold; we want to assess your ability to:

- 1) Clearly articulate a position on an issue at the intersection of faith and science and defend that stance with concrete ideas, reasoning, and references.
- 2) Use the concepts you have learned in PLNU classes & chapel, your church, or from other sources to support your position.
- 3) Present an alternative view on the issue, then explain why you do not agree with this view.
- 4) Write clearly (organized, relevant, and well-formatted) and appropriately for a college biology major audience. (Core competency - written communication)

Essay Assignment: Choose to answer one of the following questions:

Option 1: Do you believe that an acceptance of evolution as an explanation for biodiversity on Earth can be reconciled with the Christian faith?

Option 2: For you personally, what does caring for the environment have to do with Christian faith? **(Environmental Science majors write on this topic)**

Write the essay in a 5-paragraph persuasive essay format to communicate your position to a freshman biology major who may be struggling personally with the topic at hand (i.e., possibly written towards the freshman year version of yourself; what you would want to say to yourself about a topic you may have been struggling with at the time). Focus your essay on any particular aspect of your chosen topic, as long as you have a defensible position that, like any argumentative essay, you can defend in each paragraph through valid argumentative reasoning using scientific information that you've learned coupled with faith reflection(s) that you've had during your time here at PLNU. ***More information on this assignment can be found in the assignment and grading rubric on Canvas.***

Bioethics Discussion and Presentation (Student-led)

The reason that the biology department is asking you to do this presentation and to lead a discussion is 5-fold: we want to assess your ability to:

- 1) Present orally in a professional and organized manner. (Core competency - oral communication)
- 2) Use the biology concepts that you have learned to explain a bioethical issue to an audience.
- 3) Choose, incorporate, and cite several relevant, current, and authoritative sources. (Core competency - information literacy)
- 4) Work effectively as a member of a team.
- 5) Facilitate a discussion with a group of your peers in a manner that encourages participation by everyone and respects the ideas of others.

Each group will be in charge of presenting on a bioethical topic of interest that was determined on the first day of class. The group will provide a short, relatively recent reading (usually within the last 5 years) related to the topic that will introduce the bioethical issue and provide a list of questions for students to answer before the class presentation and discussion. These are due to the instructor one week before your assigned presentation day. On the presentation day, the group will present on the topic (5-7 minutes for each person), followed by leading the class in a discussion on the topic. Usually, students will have several questions that can be addressed in small groups, followed by “share-outs” to the group as a whole, but you can use your creative nature to lead this however you see best.

My evaluation will be on the quality of participation, preparation, and presentation skills, but will in no way be based on positions that you take during the various discussions. You should feel free to speak your mind and back up your opinions with good reasoning. My main goal is to challenge you to think critically as you approach scientific issues as they interface with faith and life. ***I may interject with certain scientific facts or challenge your views to help strengthen your own understanding, not to force you to believe a certain way.*** See more detailed instructions within the assignment and grading rubric on Canvas.

Attendance, participation, & professional conduct (APPC) score

PLNU is a community where students practice becoming responsible, respectful, and engaged adults. Part of this growth involves showing up to class prepared, contributing positively, and working well with others. The APPC score reflects your engagement and professional behavior in this course.

- Default Score: 50/50 points.
- Attendance: 2 points may be deducted for every class absence
- Participation & Professional Conduct: Points may also be deducted for behaviors that disrupt learning, such as talking while the instructor is speaking, using a laptop or phone for non-class purposes, or not contributing appropriately to group work.

We encourage you to be fully present in class—mind, body, and spirit—and to make your presence a positive contribution to the learning environment.

BIO 4097 Class schedule – Fall 2026

(Details for each week will be posted in Canvas)

DATE	TOPIC	READING/ASSIGNMENT	WHO
Week 1 Sept. 2	Intro to Senior Seminar, Science/Faith Essay Choosing teams, topics, and dates	DUE: Syllabus Verification (Thursday PM)	Professor
Week 2 Sept. 9	Introduction to oral presentation assignment.	DUE: Info. Literacy Assignment Oral presentation hints and examples. DUE: Presentation outline (to be completed in class)	All
Week 3 Sept. 16	Vocation discussion #1	Vocation reading assignment I DUE: Vocation reflection responses	Professor
Week 4 Sept. 23	Quantitative Assessment (in class and graphing assignment)		All
Week 5 Sept. 30	GenBio-MAPS assessment	DUE: Science & Faith Essay	All
Week 6 Oct. 7	Careers I – CV, cover letter and LinkedIn/Networking	DUE: Strengths and Weaknesses questions	Professor
Week 7 Oct. 14	Careers II – Finding a job/internship and developing your interview skills. Practice interviews in pairs	DUE: CV/Resume/LinkedIn	PLNU Career Services
Week 8 Oct. 21	Vocation discussion #2	Vocation reading assignment II DUE: Vocation reflection responses	No Lecture (Fall Break)
Week 9 Oct. 28	Student-led discussion #1	Short reading and discussion Q's	Student presenters
Week 10 Nov. 4	Student-led discussion #2	Short reading and discussion Q's	Student presenters
Week 11 Nov. 11	Student-led discussion #3	Short reading and discussion Q's	Student presenters
Week 12 Nov. 18	Student-led discussion #4	Short reading and discussion Q's	Student presenters
Week 13 Nov. 25	NO CLASS - THANKSGIVING BREAK		
Week 14 Dec. 2	Student-led discussion #5	Short reading and discussion Q's	Student presenters
Week 15 Dec. 9	Catch Up		
	NO FINAL EXAM		

Content Warning

I acknowledge that each of you comes to PLNU with your own unique life experiences. This contributes to the way you perceive various types of information. All of the class content, including that which may be intellectually or emotionally challenging, has been intentionally curated to achieve the learning goals for this course. The decision to include such material is not taken lightly. These topics include a variety of bioethical situations. If you encounter a topic that is intellectually challenging for you, it can manifest in feelings of discomfort and upset. In response, I encourage you to come talk to me or your friends or family about it. Class topics are discussed for the sole purpose of expanding your intellectual engagement in the area of biology, and I will support you throughout your learning in this course.

Trigger Warning

I acknowledge that each of you comes to PLNU with your own unique life experiences. This contributes to the way you perceive several types of information. In this course, we will cover a variety of topics, some of which you may find triggering. These topics include a variety of bioethical situations. The experience of being triggered versus intellectually challenged is different. The main difference is that an individual must have experienced trauma to experience being triggered, whereas an intellectual challenge has nothing to do with trauma. If you are a trauma survivor and encounter a topic in this class that is triggering for you, you may feel overwhelmed or panicked and find it difficult to concentrate. In response, I encourage you to take the necessary steps for your emotional safety. This may include leaving class while the topic is discussed or talking to a therapist at the Counseling Center.

GENERAL PLNU POLICIES**Spiritual Care**

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

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

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.

Artificial Intelligence (AI) Policy

The use of Artificial Intelligence (AI) tools (e.g., ChatGPT, iA Writer, Marmot, Botowski, GrammarlyGo, Perplexity, etc.) is prohibited in this course for any aspect of your work, including idea generation, drafting, editing, or final submissions. This course is designed to assess your independent critical thinking, writing, and research skills without

the assistance of AI technologies. Violations of this policy will be treated as breaches of academic integrity.

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, [by email](#) or phone at [619-849-2533](tel:619-849-2533). Once a student's eligibility for an accommodation has been determined, the EAC will work with the student to create an Accommodation Plan (AP) that outlines approved accommodations. Professors are able to view a student's approved accommodations through Accommodate.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their approved accommodations in that particular course.

Accommodations are not retroactive; as such, 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-related need should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. In accordance with ADA, accommodations cannot constitute a fundamental alteration to course outcomes; therefore, planning ahead is vital in establishing appropriate accommodations for equal access to this course. 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 eligibility 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 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 other forms of discrimination, you can find more information on reporting and resources at www.pointloma.edu/nondiscrimination.

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. 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 or find a list of campus pastors at pointloma.edu/Title-IX.

If you (or someone you know) have experienced other forms of discrimination or bias, you can find more information on reporting and resources at www.pointloma.edu/bias

PLNU Attendance and Participation Policy

Regular and punctual attendance at all class sessions is considered essential to optimum academic achievement. 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.

Note: The information below must be included under the “PLNU Attendance and Participation Policy” Section if you are teaching an Online or Hybrid course.

PLNU Course Modality Definitions

1. Online Courses: These are courses with class meetings where all instruction and interaction is fully online.
 - a. Synchronous Courses: At least one class meeting takes place at a designated time.
 - b. 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).

In some courses, a portion of the credit hour content will be delivered asynchronously and attendance will be determined by submitting the assignments by the posted due dates. See [Academic Policies](#) in the Undergraduate Academic Catalog.

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 distance education outside California.

Loma Writing Center

The Loma Writing Center exists to help all members of the PLNU community cultivate transferable writing skills to engage their academic, professional, personal, and spiritual communities. We work toward this goal by conducting one-on-one consultation sessions, supporting writing education across the PLNU community, and participating in ongoing writing center research.

Getting feedback from the Loma Writing Center while you’re in the process of working on an assignment is a great way to improve the quality of your writing and develop as a writer. You are encouraged to talk with a trained writing consultant about getting started on an assignment, organizing your ideas, finding and citing sources, revising, editing for grammar and polishing final drafts, and more. For information about how to make in-person or online appointments, see [Loma Writing Center webpage](#) or visit the Loma Writer Center on the first floor of the Ryan Library, room 221.

- [Appointment Calendar](#)
- [Website](#)
- Email: writingcenter@pointloma.edu

PLNU Academic Behavior PolicyⓈ

Both faculty and students at Point Loma Nazarene University have the right to expect a safe and ordered environment for learning. Students are expected to take the initiative to learn and conduct themselves in a mature and civil manner in the classroom environment. Any student behavior that is disruptive or threatening is a serious affront to Point Loma Nazarene University as a learning community. Students who fail to adhere to these behavioral standards may be subject to disciplinary action, including removal from class or further university sanctions. For a full definition of disruptive behavior, response procedures, and the appeal process, please consult the [Academic Behavior Policy](#) in the [University Catalog](#).