



Department of Biology | School of STEM

BIO6068 Evolutionary Biology

3 Units

Fall 2024

Online/Hybrid, In-person meetings 1x/month on Tuesdays 5:30-8:30pm

In-Person Meetings will be held in RS40

Dr. Lauren Emery

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Office location and hours: By appointment via Zoom, as needed. Mondays-Thursdays at/after 2:00pm.

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.

Course Description

The concept of evolution is viewed as the central theme unifying all of biology. In this course evolutionary processes will be discussed in their genetic, historical, religious, and ecological contexts. Topics covered include the agents of evolution, speciation, macroevolutionary trends in evolution, human evolution, and the relationship between scientific understandings of evolution and Christian concepts of creation. These topics will be addressed from the perspective of teaching for conceptual understanding. The class includes a combination of lecture, discussion, lab, data analysis, and online simulations.

Course Learning Outcomes

1. You will be able to explain the central concepts relating to the mechanisms of biological evolution and current understanding of the key events in the evolutionary origin of our own species.
2. You will demonstrate an understanding of typical experimental methods and data analysis used in the study of biological evolution.

3. You will analyze and present representative research papers in evolution.
4. You will access and use data and journals used in evolutionary biology.
5. You will examine the science and faith relationship in the context of evolutionary biology.

Required Texts and Recommended Study Resources

NOTE: Students are responsible to have the required course 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.

All readings will be posted in Modules and will be accessible online. There are no texts to purchase for this course. The primary online textbook is [The Princeton Guide to Evolution](#) which you can access through the PLNU library. You will need your login and password every time you open it.

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 16 weeks. Specific details about how the class meets the credit hour requirement can be provided upon request.

Assessment and Grading

Journal Analysis and Final Project: Three times throughout the course, you will be assigned an article to analyze. You will be asked to identify the main concepts and qualitatively assess the claims and evidence in the article. The analysis instructions and rubric remain the same each week. Additionally, in Weeks 13, 15, and 16, you will complete a culminating article analysis where you will select 3-4 articles of your choice, related to evolution, then analyze and present two of those articles to the class. This culminating article analysis is your final project for this course.

Discussions, Interactive Lessons, and Assignments: There will be approximately 7 hours of work assigned each week. Each week's assignments will open on Monday at 12:00 am. Individual assignments are due the following Sunday by 11:59 pm, but please do not wait until the weekend to complete your work. Assignments that require peer collaboration (including discussion boards) must be completed by Thursday of that week, to allow for peer comment or peer-to-peer meetings Thursday-Saturday, before final submissions on Sunday at 11:59 pm.

Exams/Quizzes: There will be three review quizzes; spread throughout the semester. There is no final exam.

Interactive Lessons, Assignments, & In-Person Labs.....	20% each
Journal Analyses & Final Project.....	10% each
Discussions & Quizzes.....	10% each
TOTAL	100%

Student grades will be posted in the Canvas grade book. Grades for Week 1 will be posted to Canvas no later than Thursday of Week 2. It is important to read the comments posted in the grade book as these comments are intended to help students improve their work. Final grades will be posted within one week of the end of the class. Grades will be based on the following:

Standard Grade Scale Based on Percentages (rounding up a 0.5)

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	

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. In BIO6068, 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 human evolution. 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.

Incompletes and Late Assignments

All assignments are to be submitted/turned in by the designated due date and time. Individual assignments are due Sunday by 11:59 pm. Assignments that require collaboration should be complete and ready to be discussed (or posted to the discussion board) by Thursday at 11:59pm. Collaboration assignments or discussion board comments are due for final submission by Sunday at 11:59pm. Incompletes will only be assigned in extremely unusual circumstances.

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 [Graduate Academic and General 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 an 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 assure 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 other forms of discrimination or bias, you can find more information on reporting and resources at www.pointloma.edu/bias.

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 or as shown in the PLNU Spiritual Care section of this syllabus.

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 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).

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.

Note: For synchronous courses with online asynchronous workload, 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 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!
- 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.

We are here to support you! Contact us anytime: GPSWritingCenter@pointloma.edu

Course Overview

Week	Dates	Topics	In-Person Meeting?
Week 1	9/3-9/8	Natural selection and mutations as a means for evolution	
Week 2	9/9-9/15	Phylogenetic trees and speciation	9/10 Phylogenetic trees
Week 3	9/16-9/22	Coevolution and life history	
Week 4	9/23-/29	Fossils	

Week 5	9/30-10/6	Tree of life	
Week 6	10/7-10/13	Coevolution and skull lab	10/8 Skull lab
Week 7	10/14-10/20	Commonalities in evolutionary paths	
Week 8	10/21-10/27	Human evolution	
Week 9	10/28-11/3	What makes us human?	
Week 10	11/4-11/10	Ecology and evolution	
Week 11	11/11-11/17	Mass extinction - KT extinction	11/12 KT extinction lab
Week 12	11/18-11/24	Genetics and adaptation	
Week 13	11/25-12/1	Culminating articles assignment introduction	<i>11/27-11/29 Thanksgiving break</i>
Week 14	12/2-12/8	Sex and evolution	
Week 15	12/9-12/15	Culminating articles assignment	
Week 16	12/16-12/22	Culminating articles assignment presentation	12/17 Articles presentations