



Biology Department

**BIO1001: Human Biology and Bioethics
Lecture (3) & Lab (1)**

4 Units

Spring 2023

The earth is the Lord's and everything in it.

-Psalms 24:1

Meeting days: Lecture: Mon., Wed., Fri. Lab: Wed., Thurs.	Instructor title and name: Dr. Walter Cho
Meeting times: Lecture: 1:30-2:25PM Lab section 1: Wed., 2:45-5:15PM Lab section 2: Thurs., 8:30-11AM	Phone: 619-849-2398
Meeting location: Lecture: Latter 02 Lab: Sator 120	Email: wcho@pointloma.edu
Final Exam: Fri., 5/05/2023, 1:30-4PM	Office location and hours: Rohr Science 134; Mon., Wed. & Fri., 8:30-9:30AM; Tues., 8:30-11:30AM- (PT); & 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.

Foundational Explorations 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 culture.

COURSE DESCRIPTION

From the course catalog:

An exploration of assorted topics in human biology as they intersect with bioethical and sustainability issues of current interest in society. Topics include human physiology, health, reproduction, genetics, and ecology. Course examines the underlying scientific basis of specific examples and how they relate to everyday life. Course approach emphasizes the process of science, critical thinking, active learning, social relevancy, and building connections between case studies and general concepts of biology. Offered every year.

This course is designed to promote learning of key concepts in general biology with special emphasis on human biology and bioethics. The course lecture and lab activities will be designed to provide multiple opportunities for students to learn and to apply the major unifying ideas and to learn how scientific inquiry operates within the field of biology. When possible, students will be able to explore organisms and/or phenomena in the lab before hearing lecture material. Lecture sessions will consist of lectures interspersed with in-class activities to give students a chance to think about and to apply what they are learning. This course is one of the components of the General Education Program at Point Loma Nazarene University. By including this course in a common educational experience for undergraduates, the faculty supports an introduction to the natural and social sciences as tools for exploring the world, with emphasis on collecting and interpreting data.

COURSE LEARNING OUTCOMES

Students in this course will:

1. Describe and discuss the major unifying ideas in biology (as represented by SHADE):
 - S Relationships between **structure** and function are seen in living organisms.
 - H Living organisms and ecosystems have feedback systems that regulate biological systems at many levels to maintain **homeostasis**/stability.
 - A Populations of living organisms may change over time (evolution/ **adaptation**), and those changes are passed to future generations by DNA.
 - D Living organisms are incredibly **diverse**, but they also show remarkable unity, especially at the cellular and molecular levels.
 - E Living organisms obtain (by eating or by photosynthesis) and use **energy**.
2. Use the processes and tools of scientific inquiry (both hypothesis testing and discovery science) to test biological hypotheses and to skeptically evaluate scientific information.
3. Prepare and/or analyze graphs to interpret data and to draw valid conclusions.
4. Design and conduct at least one independent investigation.
5. Recognize biology as a problem solving science based on past and continuing experimentation, and evaluate biology's role and impact on society.

FOUNDATIONAL EXPLORATIONS LEARNING OUTCOMES

Select questions on the final exam will be used to assess Foundational Explorations Learning Outcome 1d. Critical Thinking: Students will be able to examine, critique, and synthesize information in order to arrive at reasoned conclusions.

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

Required textbook:

- Belk & Maier (2018) Biology: Science for Life with Physiology (6th edition) (ISBN 978-0134819037)

Supplemental material:

- You will occasionally need a #2 pencil and a basic calculator.
- Additional reading may also be assigned.

Use of laptops in class

I discourage use of laptops in the lecture sessions; however, if you feel strongly that you take your best notes via computer, and that the use will not be distracting to yourself or others around you, you may do so. I may call on you more often than other students during class, just to make sure that you are on task. If computer use

becomes a problem for some students, everyone will lose the privilege. In contrast, I will sometimes ask you to bring your laptop to the lab, generally one per pair of students, so that you can look up information, work on lab reports, etc.

ASSESSMENT AND GRADING

Assignment or assessment	Description	Percentage
3 lecture exams (10% each)	Combination of multiple choice and short essay	30%
Final exam	Multiple choice (partly comprehensive)	15%
13 Labs (can do 1 extra)	Pre-lab questions, in-lab graphs, drawings, answers to questions, etc.	20%
1 lab report	Materials/methods, results, and conclusions	5%
In-class activities; Assignments	A variety of tasks will be done in class, often with a partner;	20%
Quizzes	Quizzes based on reading assignments	10%
	Total	100%

Grades will be given on the basis of earned points as a percentage of total points possible.

Grading scale:

A	90%	
B	80%	A “+” will be assigned to the upper 2% in each range (except
C	70%	for A+ which can’t be used), and a “-” will be assigned to
D	60%	the lowest 2% in each range.
F	50%	Examples: 91% = A- 69% = D+

SPIRITUAL CARE

PLNU strives to be a place where students 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 if you have prayer requests, you can contact the [Office of Student 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.

INCOMPLETES AND LATE ASSIGNMENTS

All assignments are to be submitted/turned in by the due dates listed on Canvas.

Unless otherwise specified, assignments turned in late will be graded as follows: 5% reduction per day up to 3 days late; more than 3 days late = no credit.

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

PLNU ACADEMIC ACCOMMODATIONS POLICY

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

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course and/or if they do not wish to utilize some or all of the elements of their AP in that course.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC.

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 at pointloma.edu/Title-IX. 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 at pointloma.edu/title-ix

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 drop date or, after that date, receive the appropriate grade for their work and participation.

Students are expected to take the exams on the days scheduled unless they have an excuse cleared by me no later than the Friday preceding the exam. If there is an approved conflict you will be expected to take the Exam prior to the scheduled time. If something unexpected happens, we will make appropriate arrangements at that time. Makeup exams may not be the same as the original and will generally be more difficult in nature. Un-excused misses will result in a zero grade. You will have two weeks from the time exams are handed back to discuss possible corrections, after which the grade becomes permanent.

Attending lab is mandatory and you will not be able to make up labs that are missed. In most cases, you will not be able to receive points for turning in assignments from a lab that you missed. In some cases, I will approve an excuse, and you will be able to get 50% of the points for a missed lab if you turn in the lab assignment on time. Make all attempts to attend the other lab section if you can't attend your own section.

Cell phones must be muted or on vibrate during class. Only in cases of emergency should you leave class to take a phone call, unless the lab is on a break. Texting should be extremely limited or non-existent – it really can wait until a break. NO food or drinks are allowed in the lab rooms. You may bring/use a water bottle in the lecture room, but NO food or other drinks are allowed.

In an effort to create the best learning environment possible, all students will be assigned to work in a group – whether in the lab or lecture. You may be surprised how much you can learn from one another, especially from people who you may not have chosen to work with. You are expected to show respect to your classmates and instructors by listening when others are speaking, refraining from discussing non-related issues during class, and not belittling the opinions of others, even when you disagree. Behavior intended to embarrass or ridicule others will not be tolerated and will have serious consequences. Likewise, gossip has no place in the Christian classroom.

You will be working in permanent teams that will last all semester so that you can work cooperatively.

I hope that you will participate in class discussions through asking and answering questions.

Although you may discuss readings and lecture material among yourselves, I expect that you will each do your own work. Each assignment (in its entirety) must be written **in your own words**, and no electronic files should be exchanged. Another form of plagiarizing would be to copy and paste answers from a reading which involves using someone else's words as if they were your own. Much of the learning process involves articulating the answer in your own words, and bypassing this step will almost guarantee an inadequate understanding of the material. It is also plagiarism if you use old homeworks, lab reports, exams, etc. (from previous BIO101/1001 courses) to get ideas for how to complete current homeworks, labs, and exams.

IMPORTANT DATES

Last day to add the class.....01/20/2023

Last day to drop the class.....03/24/2023

Tentative exam dates

Exam 1.....02/10/2023

Exam 2.....03/24/2023

Exam 3.....04/21/2023

Final.....05/05/2023, Friday, 1:30-4:00PM

Holidays.....01/16/2023, 03/06-10/2023, 04/06-10/2023

BIO 1001 Spring 2022 Tentative Schedule

Week (M)	MONDAY Lecture	WEDNESDAY Lecture	FRIDAY Lecture	Lab
1/09	(Meet on Tuesday) Intro to BIO1001 – main themes How do scientists learn about the world?	How do scientists learn about the world?	How do scientists learn about the world? iRAT/tRAT How do scientists learn about the world?	No Lab READING: Parts of Ch. 1, online supplemental reading
1/16	Martin Luther King Jr. Day - No class	How do genes control cells?	How do genes control cells?	The work of scientists: a) What is the nature of science? A study of animal behavior (begin) READING: Parts of Ch. 2, 6, 7, 8, 9, 10
1/23	How do genes control cells?	How do genes control cells?	How do genes control cells?	The work of scientists: A study of animal behavior (finish) Bioethics of Animal Testing READING: Parts of Ch. 2, 6, 7, 8, 9, 10 online supplemental reading
1/30	How do genes control cells?	How do genes control cells? How do cells function?	How do cells function? iRAT/tRAT	Issues in biology: Bioethics of Genetic Testing READING: Parts of Ch. 2, 6, 7, 8, 9, 10
2/06	How do cells function?	How do cells function?	EXAM #1	Cells, inheritance and growth: What happens to chromosomes when cells divide? Parts of Ch. 6, 7
2/13	How do cells function?	How do cells function?	How do cells get energy?	Metabolism: How can enzyme activity be reduced? – Lab Report READING: Parts of Ch. 3, 4
2/20	How do cells get energy?	How do cells get energy?	How do cells get energy?	Macromolecules and Food Lab READING: Parts of Ch. 2, 3, 18
2/27	How do animals' organs function?	How do animals' organs function?	How do animals' organs function?	Metabolism and physiology: Mini-physical READING: Parts of Ch. 4, 18, 19
3/06	Spring Break – No class	Spring Break – No class	Spring Break – No class	No Lab READING: Parts of Ch. 19, 20

Week (M)	MONDAY Lecture	WEDNESDAY Lecture	FRIDAY Lecture	Lab
3/13	How do animal's organs function?	How do animals' organs function? iRAT/tRAT	How do animals' organs function?	Metabolism and physiology: What is inside a fetal pig? READING: Parts of Ch. 19, 22
3/20	How are organisms interrelated?	How are organisms interrelated?	EXAM #2	Populations, species, and communities: a) Ecosphere b) How can an owl pellet provide evidence of ecosystem structure? READING: Parts of Ch. 16
3/27	How are organisms interrelated?	How are organisms interrelated?	How do populations change over time?	Populations, species, and communities: Chaparral biodiversity field Trip READING: Parts of Ch. 16, 11
4/03	How do populations change over time?	How are organisms interrelated?	Easter Recess – No Class	Populations, species, and communities: How do populations evolve? OPTIONAL Extra Credit Lab *Tidepools Field Trip* (see below) READING: Parts of Ch. 15
4/10	Easter Recess – No Class	How do populations change over time?	How do populations change over time?	No Lab READING: Parts of Ch. 11, 12
4/17	How do populations change over time?	How do populations change over time iRAT/tRAT	EXAM #3	Populations, species and communities: What can we learn from skulls? READING: Parts of Ch. 5, 12, 13, 17
4/24	How do populations change over time? Conservation	Conservation	Conservation	Field Trip to San Diego Zoo Meet at zoo at 3PM READING: Parts of Ch. 5, 15
5/01			FINAL EXAM (1:30PM-4PM)	FINAL EXAM TBD

OPTIONAL TIDEPOOLS FIELD TRIP:

Tuesday, April 4 (0.0' @ 3:12PM); Leave Rohr Science parking lot at 2:00 PM, return approx. 4:00 PM