



Biology Department/School of Social and Natural Sciences

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

4 Units  
*Spring 2024*

**LECTURE: BIO1001-1 (MWF 1:30 pm – 2:25 pm)  
Meeting location (Taylor 312)**

**LAB: BIO1001L-1 (M 2:45 pm – 5:15 pm), BIO1001L-2 (T 1:30 pm – 4 pm)  
Meeting location (Sator 105)**

**Final Exam: Monday, 4/29/2024, 1:30 – 4:00 pm**

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

*-Psalms 24:1*

INFORMATION	SPECIFICS FOR THE COURSE
Instructor title and name:	Dr. Walter Cho
Phone:	619-849-2398
Email:	<a href="mailto:wcho@pointloma.edu">wcho@pointloma.edu</a>
Office location and hours:	Rohr Science 134; Mon. & Fri., 8:30-9:30AM; Tues., 9:30-11:30AM; & 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.

## Program and 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

- 1) Link to FE (formerly GE) courses and corresponding FELO's: <https://assessment.pointloma.edu/academic-assessment/general-education/assessment-plan/>
- 2) Foundational Explorations Learning Outcome 1d. Critical Thinking: Students will be able to examine, critique, and synthesize information in order to arrive at reasoned conclusions.
- 3) Select questions on the final exam will be used to assess Foundational Explorations Learning Outcome 1d.

## 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%
	<b>Total</b>	<b>100%</b>

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+

## Final Examination Policy

Successful completion of this class requires taking the final examination on its scheduled day. The final examination schedule is posted on the [Traditional Undergraduate Records: Final Exam Schedules](#) site. If you find yourself scheduled for three (3) or more final examinations on the same day, you are authorized to contact each professor to arrange a different time for one of those exams. However, unless you have three (3) or more exams on the same day, no requests for alternative final examinations will be granted.

## 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 BIO1001/BIO1001L, 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  
Last Rev. October 4, 2023

decision to include such material is not taken lightly. These topics include issues related to the intersection of science and faith, evolution, climate change, and environmental stewardship. 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 BIO1001/BIO1001L, we will cover a variety of topics, some of which you may find triggering. These topics include issues related to the intersection of science and faith, evolution, climate change, and environmental stewardship. Each time this topic appears in a reading or unit, it is marked on the syllabus. The experience of being triggered versus intellectually challenged are 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. Should you choose to sit out on discussion of a certain topic, know that you are still responsible for the material; but we can discuss if there are other methods for accessing that material, and for assessing your learning on that material. 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 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.

### **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](#).

### **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 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.

## **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

Last Rev. October 4, 2023

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. 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 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.

## **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.

## **IMPORTANT DATES**

Last day to add the class.....01/19/2024

Last day to drop the class.....03/22/2024

Tentative exam dates

Exam 1.....02/09/2024

Exam 2.....03/22/2024

Exam 3.....04/19/2024

Final.....04/29/2024, Monday, 1:30-4:00PM

Holidays.....01/15/2024, 03/04-08/2024, 03/28/2024-04/01/2024

## BIO 1001 Spring 2024 Tentative Schedule

Week (M)	MONDAY Lecture	WEDNESDAY Lecture	FRIDAY Lecture	Lab
<b>1/08</b> <b>WEEK 1</b>	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?	<b>The work of scientists:</b> a) <b>What is the nature of science?</b> <b>A study of animal behavior (begin)</b> <b>READING: Parts of Ch. 1, online supplemental reading</b>
<b>1/15</b> <b>WEEK 2</b>	<b>Martin Luther King Jr. Day - No class</b>	How do genes control cells?	How do genes control cells?	<b>NO LAB</b> <b>READING: Parts of Ch. 2, 6, 7, 8, 9, 10</b>
<b>1/22</b> <b>WEEK 3</b>	How do genes control cells?	How do genes control cells?	How do genes control cells?	<b>The work of scientists: A study of animal behavior (finish)</b> <b>Bioethics of Animal Testing</b> <b>READING: Parts of Ch. 2, 6, 7, 8, 9, 10 online supplemental reading</b>
<b>1/29</b> <b>WEEK 4</b>	How do genes control cells?	How do genes control cells? How do cells function?	How do cells function? iRAT/tRAT	<b>Variation Lab</b> <b>READING: Parts of Ch. 2, 6, 7, 8, 9, 10</b>
<b>2/05</b> <b>WEEK 5</b>	How do cells function?	How do cells function?	<b>EXAM #1</b>	<b>Cells, inheritance and growth:</b> <b>What happens to chromosomes when cells divide?</b> <b>Parts of Ch. 6, 7</b>
<b>2/12</b> <b>WEEK 6</b>	How do cells function?	How do cells function?	How do cells get energy?	<b>Metabolism: How can enzyme activity be reduced? – Lab Report</b> <b>READING: Parts of Ch. 3, 4</b>
<b>2/19</b> <b>WEEK 7</b>	How do cells get energy?	How do cells get energy?	How do cells get energy?	<b>Macromolecules and Food Lab</b> <b>READING: Parts of Ch. 2, 3, 18</b>
<b>2/26</b> <b>WEEK 8</b>	How do animals' organs function?	How do animals' organs function?	How do animals' organs function?	<b>Metabolism and physiology: Mini-physical</b> <b>READING: Parts of Ch. 4, 18, 19</b>
<b>3/04</b> <b>WEEK 9</b>	<b>Spring Break – No class</b>	<b>Spring Break – No class</b>	<b>Spring Break – No class</b>	<b>NO LAB</b> <b>READING: Parts of Ch. 19, 20</b>
<b>3/11</b> <b>WEEK 10</b>	How do animal's organs function?	How do animals' organs function? iRAT/tRAT	How do animals' organs function?	<b>Metabolism and physiology: What is inside a fetal pig?</b> <b>READING: Parts of Ch. 19, 22</b>

Week (M)	MONDAY Lecture	WEDNESDAY Lecture	FRIDAY Lecture	Lab
<b>3/18</b> <b>WEEK 11</b>	How are organisms interrelated?	How are organisms interrelated?	<b>EXAM #2</b>	<b>Populations, species, and communities:</b> a) Ecosphere b) How can an owl pellet provide evidence of ecosystem structure? <b>READING: Parts of Ch. 16</b>
<b>3/25</b> <b>WEEK 12</b>	How are organisms interrelated?	How are organisms interrelated?	<b>Easter Recess – No Class</b>	<b>Populations, species, and communities: Chaparral biodiversity field Trip</b> <b>READING: Parts of Ch. 16, 11</b>
<b>4/01</b> <b>WEEK 13</b>	<b>Easter Recess – No Class</b>	How are organisms interrelated?	How do populations change over time?	<b>NO LAB/OPTIONAL Extra Credit Lab on THURSDAY</b> <b>*Tidepools Field Trip* (see below)</b> <b>READING: Parts of Ch. 15</b>
<b>4/08</b> <b>WEEK 14</b>	How do populations change over time?	How do populations change over time?	How do populations change over time?	<b>Populations, species, and communities: How do populations evolve?</b> <b>READING: Parts of Ch. 11, 12</b>
<b>4/15</b> <b>WEEK 15</b>	How do populations change over time?	How do populations change over time iRAT/tRAT	<b>EXAM #3</b>	<b>Populations, species and communities: What can we learn from skulls?</b> <b>READING: Parts of Ch. 5, 12, 13, 17</b>
<b>4/22</b> <b>WEEK 16</b>	How do populations change over time? Conservation	Conservation	Conservation	<b>Climate Change Lab</b> <b>READING: Parts of Ch. 5, 15</b>
<b>4/29</b>	<b>FINAL EXAM (1:30PM-4PM)</b>			<b>FINAL EXAM</b>

**OPTIONAL TIDEPOOLS FIELD TRIP:**

**THURSDAY, April 4 (-0.7' @ 1:20PM); Leave Rohr Science parking lot at 11:30 AM, return approx. 1:30 PM**