POINT 1902 LOMA
NAZARENE UNIVERSITY

Bio 2012 Organismal Biology
Dr. Dianne Anderson **Spring 2022**

You alone are the LORD. You made the heavens, even the highest heavens, and all their starry host, the earth and all that is on it, the seas and all that is in them.
You give life to everything, and the multitudes of heaven worship you. Nehemiah 9:6

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
Principles of animal and plant structure, function, and diversity. Lecture and lab must be taken at the same time. Offered every year. (4 units)

Where does this course fit in? It's one of three required courses (Bio 2010, 2011, and 2012) that form the lower division biology sequence for the Biology, Biology-Chemistry, and Environmental Science majors, and is required for the Organismal Biology minor. It also serves as preparation for upper-division organismal biology courses such as Applied Plant Biology and Advanced Human Physiology.

Course learning outcomes:
1. Students will explain the structure and function of multicellular organisms in terms of the adaptation of common body plans to diverse environmental challenges.
2. Students will analyze the common and divergent ways that animals, plants, protists, and fungi solve the physiological problems of maintaining homeostasis, detecting/responding to stimuli, obtaining energy/ nutrients, transporting materials, removing wastes, growing/developing, and reproducing.
3. Students will relate the properties of macromolecules, and the cells containing them, to the function of tissues, organs, and organ systems.
4. Use an understanding of how animals, plants, fungi and protists function to inspire sustainable solutions to societal problems including climate change, medical care, clean food/water and energy.

Class meeting places and times
Lecture: MWF 12:15-1:10 PM meets in Latter Hall 1
Labs: Sec. 1 (Mon. 2:45-5:45 PM), Sec. 2 (Tues. 8:00-11:00 AM), and Sec. 3 (Tues. 1:30-4:30 PM)
All lab sections meet in Rohr Science 40

Instructors and instructor availability
Dianne L. Anderson, Ph.D. Lecture and Quad I labs for Sections 1 & 2) dianneanderson@pointloma.edu
Phone: (619) 849-2705 Office hours in RS146: Tues. 1:00-3:00 PM and Thurs. 3:00-4:30 PM or by appt.

Jennifer Niethammer, M.S. (Section 3 lab and Quad II labs for Sections 1 & 2) jnietham@pointloma.edu
Office and Office Hours: 30 minutes before (Mon lab and Tuesday PM lab) or after class (Tuesday AM lab) in the lab room.

Required materials

1. Brooker, Widmaier, Graham & Stiling. (2021 edition) ***Principles of Biology****,* 3rd edition. McGraw-Hill. ISBN 9781260708325 NOTE: If you already have the 2017 version (2nd edition), that will also work!
2. Chamovitz, Daniel (2017 edition). ***What a Plant Knows: A Field Guide to the Senses*****.** Scientific American: New York, New York. (Referred to as "WAPK" in the schedule)
3. Catania, Kenneth. (2020). ***Great Adaptations: Star-Nosed Moles, Electric Eels, and Other Tales of Evolution's Mysteries Solved.*** Princeton University Press
4. **iClicker –** Available in the bookstore if you don't already have one. (needed for F2F lecture sessions)

Clicker registration

The iClicker remote is available to buy or rent at the bookstore or online. You need to register your clicker online by going to this web address: https://www.iclicker.com/remote-registration-form-for-classic

How we've organized this course and how you can succeed…

Lecture class is designed to introduce you to essential concepts illustrated by specific examples, and to equip you to apply your understanding to scientific problems. The associated reading comes from a stated portion of a chapter or chapters of Brooker, or from other assigned reading. Learning outcomes for each topic are available on Canvas; these learning outcomes are the basis for the lecture exams. Powerpoint slides for each lecture will be posted on Canvas by the morning of class. It is strongly recommended that you go through the learning outcomes and slides before lecture so that you can be prepared. The lab exercises are an essential component of the course. It's often a good idea to bring your textbook (Brooker) to lab. Each lab will have a 5 pt. quiz at the beginning of lab to assess understanding of the previous week's lab. Most of the labs will be completed using lab documents on Canvas, so bring your computer to lab.

Help with studying, keeping up, and writing

We recognize that students come from a great variety of academic backgrounds, and that some of you may not have yet developed the appropriate study skills to do as well as you would like in college. Everyone needs help from time to time. There are many places to gain assistance or study skills - your peers, the professors, or PLNU's Tutorial Services Center. The center is located at the south end of the Bond Academic Center, next to the Office of Global Studies. A list of the Center's services can be found here:
http://www.pointloma.edu/experience/offices/student-services/tutorial-services/services

Attendance

Lecture and laboratory attendance is mandatory. Poor attendance tends to correlate with low exam scores. Please communicate with us regarding any planned absences. At 5 lecture (or 2 lab) absences, we must contact the Vice-Provost for Academic Administration for possible de-enrollment. At 10 lecture (or 3 lab) absences, you will be dropped from the course unless there is an exception granted by the administration. Note these important dates:
January 21, 2022 is the last day to add BIO 2012.
March 25, 2022 is the last day to drop BIO 2012.

In-class expectations

Computer activity in class must be course-related. Misuse in this regard could lead to us to ban all personal computers and phones in class. We will endeavor to start lecture and lab classes at the stated times. Please do

the same! Extend the same type of courteous, considerate, and respectful behavior towards each other and towards us as we will extend to you.

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 4-unit class (3 units lecture and 1 unit lab) delivered over 15 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 150 total hours on this course during the semester.

Assignments and grading

All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas. Incompletes will only be assigned in extremely unusual circumstances. Your grades for lecture and lab will be combined, and the same grade will be given to both.

Assignment/Exam	**Points possible**
Exams 3 @ 100 points each	300 points
Final exam (partly comprehensive)	125 points
11 lab quizzes @ 5 points each	55 points
Open-book reading quizzes 6 @ 10 points each	60 points
15 labs @ 10 points each (your lowest lab score will be dropped)	140 points
Misc. in-class activities and small assignments	Approx. 100 points
TOTAL	**780 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 lower

Exams

The course has three lecture exams as well as the final exam. The first three exams consist of multiple-choice, matching, and short-answer questions. The final exam (all multiple choice) will consist of 60% items related to the last portion of the course, as well as 40% items related to the main ideas/themes of the overall course. Please notify the appropriate instructor **in advance** of the need to reschedule an exam in case of an excused absence. Final Exam policy: Successful completion of this class requires taking the final examination on its scheduled day and time: (Wednesday, May 4 from 10:30 a.m.-1:00 p.m). No requests for early exams will be granted, so plan accordingly.

Coronavirus-Related Safety Requirements

1. A surgical mask (or double layer cloth mask) must be worn properly in at ALL times in the classroom. This will be strictly enforced! If you forget your mask, you will be sent out to get one. Your face mask should completely cover both your nose and mouth at all times. Do NOT let your mask sag below your nose or mouth and become a chin strap.
2. Hands should be washed thoroughly (20-30 sec) with soap both at the beginning and at the conclusion of each laboratory period. Coronaviruses are effectively trapped by soap (like grease on pots and pans when washing dishes) and removed from your hands if you thoroughly wash your hands with soap for at least

20-30 seconds, and then dry them completely. Hand sanitizer will be made available as well, and tables will be sanitized at the end of each lab class.

GENERAL PLNU POLICIES

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.

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.

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 students have questions, a desire to meet with the chaplain or have prayer requests you can contact the Office of Spiritual Development.

Schedule BIO 2012 overview – schedule subject to change
(all assignment details and due dates on Canvas)

Week/ Date	Monday	Monday/Tuesday labs	Wednesday	Friday
WK #1 Jan. 10	(meets on Tuesday) Intro to Organismal Biology	On your own: Lab #1 Protist Diversity Part A Lab #2 Plant Cell Biol. Part A	Protist Diversity I (zoom)	Protist Diversity II (zoom)
WK #2 Jan. 17	**No class – MLK day**	**Monday lab: Come on Tues. to complete both labs** Lab #1 Protists Diversity Part B Lab #2 Plant Cell Biol. Part B	Intro to Plants	Intro to Plants
WK #3 Jan. 24	Plant Diversity I	Lab #3 Ferns, Mosses & Gymnosperms	Plant Diversity II	Plant Diversity III
	Lab #4 Tidepool field trip options: Friday 28th 1:15-4:15, Saturday 29th 1:00-4:00, or Sunday 30th 1:30-4:30			
WK #4 Jan. 31	Alternation of Generations	Lab #5 Flower, Fruit, and Seeds	Model of flowering plant reproduction	**Exam #1**
WK #5 Feb. 7	Plant Development I	Lab #6 Roots, Stems & Wood	Plant Development II	Roots & Nutrition **WAPK Quiz #1**
WK #6 Feb. 14	Photosynthesis I	Lab #7 Leaves	Photosynthesis II	Plant Transport I **WAPK Quiz #2**
WK #7 Feb. 21	Plant Transport II	Lab #8 Balboa Park Field trip	Plant Detection/Response to Stimuli I	Plant Detection/Response to Stimuli II **WAPK Quiz #3**
WK #8 Feb. 28	Removing Wastes/ Intro to Fungi	Lab #9 Tonicity & Osmolarity	**Exam #2**	Fungal Diversity
Mar. 7	**NO CLASS – SPRING BREAK**			
WK #9 Mar. 14	Intro to Animals	Lab #10 Animal Diversity	Animal Diversity Part I 2	Animal Diversity II
WK #10 Mar. 21	Animal Diversity III	Lab #11 Soil Invertebrate Diversity	Animal Homeostasis I	Homeostasis II **GA Quiz #1**
WK #11 Mar. 28	Digestion I	Lab #12 Invertebrate Dissection	Digestion II	**Exam #3**
WK #12 April 4	Animal Transport I	Day off to make up for Tidepool field trip	Animal Transport II	Animal Transport III **GA Quiz #2**
WK #13 April 11	Animal Waste Removal I	Lab #13 Fetal Pig Dissection	Animal Waste Removal II	**No Class – Easter Break**
WK #14 April 18	**No class – Easter break**	Lab #14 Animal Reproduction (online)	Animal Reproduction	Animal Detection/Response to Stimuli I **GA Quiz #3**
WK #15 April 25	Animal Detection/Response to Stimuli II	Lab #15 San Diego Zoo field trip	Animal Detection/Response to Stimuli III	Semester Review
Exam Week			**Final Exam – Wed, May 4 10:30 – 1:00**	