



Department of Biology

Microbiology of Infectious Diseases Lab BIO2020L 2A/2B

Lab (1 unit)

Fall 2023

Meeting days/times Tuesdays 7:30am-10:30am (sec.2A) 10:30am-1:30pm (sec.2B)

Meeting location Sator Hall Lab 105

Instructor title and name:	Dr. Heidi R. Woelbern
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Office location and hours:	Rohr Science 164, LINK (select an appointment slot)

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

A study of microbial physiology, the diseases associated with infections by certain pathogenic microbes and the vertebrate response to microbial infections. Does not apply toward the Biology major. Lecture and lab. Offered every year.

Prerequisite(s): CHE1003 (or CHE1052); BIO1040 (may be taken concurrently).

Program and Course Learning Outcomes

The unifying theme of this course is pathogenesis, the detrimental interactions between microorganisms and their human hosts. Our main objectives will be to understand what pathogenic microorganisms are, how they cause disease, and how we may be able to control them.

Specific learning outcomes: By the end of the semester, students will be able to

- describe the physical nature and life cycles of bacteria and viruses;
- distinguish bacteria from viruses and the diseases they cause;
- recognize and distinguish diseases caused by enteric bacteria, Gram-positive rods, and Gram-positive cocci;
- evaluate different antibiotics for application to the different groups of bacterial pathogens;
- carry out and interpret fundamental microbiology lab procedures.

Required Texts and Recommended Study Resources

1. *Follow Your Gut*. Rob Knight, Simon & Schuster, 2015. ISBN 978-1476784748
2. *Safety glasses for lab*. Note: these are not required if you wear reading glasses in lab.

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 one-unit class delivered over 15 weeks. It is anticipated that students will spend a minimum of 37.5 participation hours per credit hour on their coursework.

Assessment and Grading

A total of 850 points are possible in the class: 695 points in lecture and another 155 points in lab.

*NOTE: Lab grades are combined with lecture grades and only one final grade is assigned to the entire course.

Weekly quizzes (35 points). A 5-question, 5-point quiz will be given at the beginning of each regular lab period; quizzes missed because of tardiness cannot be made up. The focus will be on the assigned preparation for the week (see schedule below). Your lowest lab quiz will be dropped.

Lab reports (80 points). After each of the labs is complete, you will turn in a lab report with your partner. There are six 10-point lab reports, and the final lab report is worth 20 points.

Follow Your Gut (40 points). One 20-point quiz will be given covering this short book by Rob Knight. This is an open-book quiz, but there will be a time limit of 1 hour, so thorough preparation is essential. The goal is not to *memorize* what you read, but to *understand* it. The additional 20 points will come from an infographic you and your partner will create on the gut microbiome. Additional instructions will be provided at a later date.

Point breakdown

8 Weekly quizzes at 5 points each (lowest quiz dropped)	35 points
Lab reports (1-6)	60 points
Lab report 7	20 points
1 <i>Follow Your Gut</i> quiz	20 points
1 <i>Follow Your Gut</i> microbiome presentation	20 points
TOTAL	155 points possible

Grade Scale Based on Percentages

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

Date	Lab topic	Comments
8/29		NO LAB
9/5	Lab 1: Contamination and aseptic technique	Quiz 1
9/12	Lab 2: Isolation of individual species	Quiz 2 Lab report 1 due by 9:00 pm
9/19		NO LAB – EXAM WEEK
9/26	Lab 3: Physical controls on microbial growth	Quiz 3 Lab report 2 due by 9:00 pm
10/3	Lab 4: Chemical controls on microbial growth	Quiz 4 Lab report 3 due by 9:00 pm
10/10	Lab 5: The compound light microscope	Quiz 5 Lab reports 4 & 5 due by 9:00 pm
10/17		NO LAB – EXAM WEEK + FALL BREAK
10/24	Lab 6: Staining bacteria	Quiz 6 Lab report 6 due by 9:00 pm
10/31	Lab 7: Diagnostic testing	Quiz 7
11/7	Lab 7b: Diagnostic testing	Quiz 8
11/14		NO LAB – EXAM WEEK
11/21		NO LAB – THANKSGIVING WEEK
11/28	Lab 7c: Diagnostic testing <i>Follow Your Gut</i>	<i>Follow Your Gut</i> quiz Introduction to the infographic Lab report 7 by 9:00pm (20 pts)
12/5	<i>Gut Week</i>	<i>Follow Your Gut</i> Infographic due before lab Instructions will be posted on Canvas

Incompletes and Late Assignments

All assignments are to be submitted/turned in when they are due—including assignments posted in Canvas. Incompletes will only be assigned in extremely unusual circumstances. I have intentionally made most assignments due by 9:00pm, as opposed to midnight.

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 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 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 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](#).

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.