

# Course Syllabus

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**Department of Biology**

**BIO 1006 - Global Health and Pathogens**

**4 units**

**Spring 2023 | Quad 2**

**March 1 - April 28**

**Meeting days: Optional Zoom Monday Review Session/Office Hours**

**Instructor: Dr. Paul Silva**

**Meeting times: 10:00-11:00 (optional)**

**The best way to communicate with me is by EMAIL!**

**Meeting location: Zoom**

**Email: [psilva@pointloma.edu](mailto:psilva@pointloma.edu) (<mailto:psilva@pointloma.edu>)**

**Office Hours Zoom: Monday 10:00-11:00**

## 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

An examination of current topics in global health as they impact society, bioethics, and creation care. The course addresses the topics of the major pathogens that threaten global health, the basic immune response to a pathogen, how vaccines work, and challenges to fighting pathogens on a global level. The course approach emphasizes critical thinking, active learning, social relevancy, and building connections between case studies and general concepts of biology. Online.

### INSTITUTIONAL LEARNING OUTCOMES (ILO's)

1. **Learning** - students will acquire knowledge of human cultures and the physical and natural world while developing skills and habits of the mind that foster lifelong learning.
2. **Growing** - students will develop a deeper and more informed understanding of others as they negotiate complex professional, environmental and social contexts.
3. **Serving** - students will serve locally and/or globally in vocational and social settings.

### COURSE LEARNING OUTCOMES (CLO's)

The following student learning outcomes will be achieved by this course; student will be able to:

1. list the major pathogens that threaten global health.
2. describe the differences between viruses, prokaryotic pathogens, and eukaryotic pathogens.
3. describe a basic immune response to a pathogen.
4. describe how a vaccine works and why some pathogens are challenging to develop vaccines for.
5. describe other challenges to fighting pathogens on a global level.
6. effectively express ideas and information to others through written communication.
7. to examine, critique, and synthesize information in order to arrive at reasoned conclusions.

## 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 **four unit** class delivered over **eight weeks**. It is anticipated that students will spend a minimum of 37.5 participation hours per credit hour on their course work. The overall time expectations for this course are shown below and weekly expectations are found in each weekly introduction.

### Distribution of Assignments

Assignments	Hours
Readings	36
Online Discussions/Responses	36
Assignments	34
Preparation for and Taking Quizzes, Surveys, and Exams	21
Video Lectures/Animations/Office Hours	15
Final Project	8
Total	150

## REQUIRED TEXTS

Hotez, P. J. (2013). *Forgotten People, Forgotten Diseases: the Neglected Tropical Diseases and their Impact on Global Health and Development*. Washington D.C.: ASM Press.

Quammen, D. (2013). *Spillover: Animal Infections and the Next Human Pandemic*. New York, NY: W. W. Norton & Company.

Sherman, I. W. (2007). *Twelve Diseases that Changed the World*. Washington D.C.: ASM Press.

Other selected readings will be provided as pdf files.

**Note:** The first 3 books are available as new or used.

## ASSESSMENT AND GRADING:

Your grades will be posted in the Canvas grade book no later than midnight on **Tuesday** of each week beginning in Week Two of this course. It is important to read the feedback provided in the grade book as these comments are intended to help you improve your work. Final grades will be posted within ten days of the end of the class. Multiple measures of evaluation are used in the course, allowing students opportunities to demonstrate their learning in more than one way, and giving consideration to individual learning styles. Course components that will be evaluated include:

1. **Discussion and Responses** (25%)
2. **Individual Assignments** and Group Assignments (30%)
3. **Quizzes** (10%)
4. **Final Exam** (20%)
5. **Final Project** (15%)

Final grades will be determined by the grade scale listed below.

Grading Scale - At the end of the semester, a letter grade for the course will be based on the following scale:

### Grade Scale

<b>Standard Grade Scale Based on Percentage of Points Earned</b>				
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
A 93-100	B+ 87-89	C+ 77-79	D+ 67-69	F ≤ 59
A- 90-92	B 83-86	C 73-76	D 63-66	
	B- 80-82	C- 70-72	D- 60-62	

## COURSE REQUIREMENTS

**Notes on Group Assignments:** Since the class is so short, students will be assigned into groups of approximately 5 at the beginning of the class, and they will keep these groups for the whole time. Importantly, each person will complete a group member evaluation at the end of the course.

**Notes on Discussion Boards:** Students must always post before they can see others' posts. They must always respond to two posts of classmates.

## 1. Discussion and Responses

Each week students will participate in online discussions with classmates, which are related to the week's readings and content. These discussions replace the interactive dialogue that occurs in the traditional classroom setting.

These assignments are interspersed throughout every module. They include discussion boards and life application assignments to Scripture. All response exercises can be found in each module along with the due dates. A point breakdown is given below, and it is based on the amount of time estimated to complete the discussion assignments. (M indicates Module number; D indicates Discussion number; LA indicates Life Application number.)

## 2. Individual Assignments

There are written assignments that are due throughout the course. Reminders of due dates can be found in the modules as well as the calendar on Canvas. These assignments must reflect college-level writing and critical thinking.

## 3. Collaborative Group Assignments and Evaluation

Due to the complex nature of some of the readings, these assignments are designed so that a group of five can work together on the assignment and bounce ideas off of each other. You will be assigned into groups at the beginning of the course, and you will keep your same group for the whole course. A confidential group member evaluation will be turned in at the end of the course.

4. **Quizzes** There are 5 quizzes to test your understanding of some of the readings, and each quiz is worth 20 points.

## 5. Final Exam

The final exam will be cumulative and will focus on the major concepts that we covered throughout the course.

This exam will occur via Honorlock, and you need the **Chrome browser and a webcam** in order to make that work.

**The Final Exam represents 20% of the overall course grade.**

## 6. Final Project

The required signature assignment for this course will be a PowerPoint presentation on a disease (CLO6,7). In this presentation, the students will present information on a pathogen that threatens global health (CLO1). They will describe the type of pathogen it is (CLO2), and describe how the immune system responds to the pathogen (CLO3). They will discuss whether a vaccine is being developed for this pathogen (CLO4) and what the challenges are in treating people in developing countries (CLO5).

The final assignment for this course serves as an opportunity for you to apply your knowledge of Informal Interpretive Communication through a class presentation. The purpose of the final project is for you to culminate the learning achieved in the course.

**The Final Project represents 15% of the overall course grade.**

## 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.

## ATTENDANCE

Regular and punctual attendance is considered essential to optimum academic achievement. As a student in this course, in addition to attending the face-to-face sessions, you will have a minimum attendance requirement of three days each week. This means you will need to log into Canvas and post an assignment or response on at least three days in each week. Any day missed below this minimum requirement will count as an absence. Students may be dropped from the course if two such absences are recorded during the class and **will be** dropped if four such absences occur or if a student fails to attend class in any given week.

If you desire to succeed in this course, you will need to organize your schedule each week so you are able to devote time each week, to reading, responding and completing assignments in the course. The weekly demands are great and you must remain self-motivated and structure your time wisely in order to succeed.

In some courses, a portion of the credit hour content will be delivered **asynchronously** and attendance will be determined by submitting the assignments by the posted due dates. See [Academic Policies \(https://catalog.pointloma.edu/content.php?catoid=52&navoid=2919#Academic\\_Honesty\)](https://catalog.pointloma.edu/content.php?catoid=52&navoid=2919#Academic_Honesty) in the Undergraduate Academic Catalog. If absences exceed these limits but are due to university excused health issues, an exception will be granted.

## Asynchronous Attendance/Participation Definition

A day of attendance in asynchronous content is determined as contributing a substantive note, assignment, discussion, or submission by the posted due date. Failure to meet these standards will result in an absence for that day. Instructors will determine how many asynchronous attendance days are required each week.

## INCOMPLETE AND LATE ASSIGNMENTS

All assignments are to be submitted by the due dates posted. There will be a 10% reduction of possible points for each day an assignment is late. If missing assignments result in your failure to meet learning outcomes, this instructor may give up to a letter grade reduction on the final grade in addition to the loss of points for missing work. No assignments will be accepted after midnight on Sunday night, the last day of class. There are no extensions beyond the final day of class and receiving an incomplete is not an option in a fully online course.

While there are due dates for weekly assignments, you are welcome to post your work earlier in the week. **In our discussions, late work means that others may not have the opportunity to respond to your comments.** It also means that you will not have the benefit of as much interaction with other students as you will have if your assignment is posted on time. If you know you will be away on the day your assignment is due, please post your work before you leave.

Assignments will be considered late if posted after midnight Pacific Standard Time on the day they are due.

## ACADEMIC HONESTY

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 \(https://catalog.pointloma.edu/content.php?catoid=52&navoid=2919#Academic\\_Honesty\)](https://catalog.pointloma.edu/content.php?catoid=52&navoid=2919#Academic_Honesty) 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](mailto: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.

If students do not wish to avail themselves of some or all of the elements of their AP in a particular course, it is the responsibility of those students to notify their professor in that course. PLNU highly recommends that DRC students speak with their professors during the first two weeks of each semester about the applicability of their AP in that particular course and/or if they do not desire to take advantage of some or all of the elements of their AP in that course.

## **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.

## **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 \(https://help.pointloma.edu/TDClient/1808/Portal/KB/ArticleDet?ID=108349\)](https://help.pointloma.edu/TDClient/1808/Portal/KB/ArticleDet?ID=108349) 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 require 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.**

## ASSIGNMENTS AT-A-GLANCE

## Course Summary:

Date	Details	Due
	 <a href="#">BIO1006-1 SP23 - Global Health and Pathogens</a> <a href="https://canvas.pointloma.edu/calendar?event_id=140608&amp;include_contexts=course_66436">https://canvas.pointloma.edu/calendar?event_id=140608&amp;include_contexts=course_66436</a>	10am to 11am
	 <a href="#">Academic Honesty Verification Statement</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891666">https://canvas.pointloma.edu/courses/66436/assignments/891666</a>	due by 11:59pm
Wed Mar 1, 2023	 <a href="#">WK1: Assignment 1: Leading Causes of Death (M1A1)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891683">https://canvas.pointloma.edu/courses/66436/assignments/891683</a>	due by 11:59pm
	 <a href="#">WK1: Discussion: Leading Causes of Death (M1D1)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891674">https://canvas.pointloma.edu/courses/66436/assignments/891674</a>	due by 11:59pm
	 <a href="#">WK1: Introduce Yourself</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891673">https://canvas.pointloma.edu/courses/66436/assignments/891673</a>	due by 11:59pm
Thu Mar 2, 2023	 <a href="#">WK1: Assignment 2: Acute Respiratory Infections and Diarrheal Diseases (Groups) (M1A2)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891684">https://canvas.pointloma.edu/courses/66436/assignments/891684</a>	due by 11:59pm
Tue Mar 14, 2023	 <a href="#">WK2: Assignment 1: DALY (M1A3)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891685">https://canvas.pointloma.edu/courses/66436/assignments/891685</a>	due by 11:59pm

Date	Details	Due
	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891686">WK2: Assignment 2: Neglected Tropical Diseases (M1A4)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891686">https://canvas.pointloma.edu/courses/66436/assignments/891686</a>	due by 11:59pm
Wed Mar 15, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891679">WK2: Discussion: NTDs (M1D2)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891679">https://canvas.pointloma.edu/courses/66436/assignments/891679</a>	due by 11:59pm
	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891680">WK2: Life Application (M1LA)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891680">https://canvas.pointloma.edu/courses/66436/assignments/891680</a>	due by 11:59pm
Sat Mar 18, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891661">WK2: Summative Quiz (M1Q)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891661">https://canvas.pointloma.edu/courses/66436/assignments/891661</a>	due by 10:59pm
Tue Mar 21, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891687">WK3: Assignment 1: Pathogens (M2A1)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891687">https://canvas.pointloma.edu/courses/66436/assignments/891687</a>	due by 11:59pm
Wed Mar 22, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891672">WK3: Discussion: Vaccine Trials (M2D1)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891672">https://canvas.pointloma.edu/courses/66436/assignments/891672</a>	due by 11:59pm
Thu Mar 23, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891688">WK3: Assignment 2: Viruses - Ebola Virus (Groups) (M2A2)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891688">https://canvas.pointloma.edu/courses/66436/assignments/891688</a>	due by 11:59pm
Tue Mar 28, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891689">WK4: Assignment: Parasites - Soil-transmitted Helminths (M2A3)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891689">https://canvas.pointloma.edu/courses/66436/assignments/891689</a>	due by 11:59pm
Wed Mar 29, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891675">WK4: Discussion: The Great Ape Gamble (M2D2)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891675">https://canvas.pointloma.edu/courses/66436/assignments/891675</a>	due by 11:59pm

Date	Details	Due
Sat Apr 1, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891681">WK4: Life Application 2 (M2LA)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891681">https://canvas.pointloma.edu/courses/66436/assignments/891681</a>	due by 11:59pm
Sat Apr 1, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891663">WK4: Summative Quiz (M2Q)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891663">https://canvas.pointloma.edu/courses/66436/assignments/891663</a>	due by 11:59pm
Tue Apr 4, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891662">WK5: Quiz on Innate Immunity (M3Q1)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891662">https://canvas.pointloma.edu/courses/66436/assignments/891662</a>	due by 11:59pm
Wed Apr 5, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891667">WK5: Quiz on Adaptive Immunity (M3Q2)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891667">https://canvas.pointloma.edu/courses/66436/assignments/891667</a>	due by 11:59pm
Wed Apr 5, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891671">WK5: Discussion: Immune System Analogy (M3D)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891671">https://canvas.pointloma.edu/courses/66436/assignments/891671</a>	due by 11:59pm
Tue Apr 11, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891676">WK5: Life Application 3 (M3LA)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891676">https://canvas.pointloma.edu/courses/66436/assignments/891676</a>	due by 11:59pm
Tue Apr 11, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891690">WK6: Assignment: Influenza virus (Groups) (M4A1)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891690">https://canvas.pointloma.edu/courses/66436/assignments/891690</a>	due by 11:59pm
Tue Apr 11, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891670">WK6: Discussion: Global Pandemic (M4D)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891670">https://canvas.pointloma.edu/courses/66436/assignments/891670</a>	due by 11:59pm
Tue Apr 11, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891677">WK6: Life Application 4 (M4LA)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891677">https://canvas.pointloma.edu/courses/66436/assignments/891677</a>	due by 11:59pm

Date	Details	Due
	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891668">WK6: Quiz on Vaccines (M4Q)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891668"> (https://canvas.pointloma.edu/courses/66436/assignments/891668)</a>	due by 11:59pm
Wed Apr 12, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891691">WK6: Assignment: Smallpox (M4A2)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891691"> (https://canvas.pointloma.edu/courses/66436/assignments/891691)</a>	due by 11:59pm
Tue Apr 18, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891693">WK7: Immune Response to HIV (M5A1)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891693"> (https://canvas.pointloma.edu/courses/66436/assignments/891693)</a>	due by 11:59pm
Wed Apr 19, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891669">WK7: Discussion: HIV Vaccine (M5D1)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891669"> (https://canvas.pointloma.edu/courses/66436/assignments/891669)</a>	due by 11:59pm
Sat Apr 22, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891692">WK7: Final Project (Groups)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891692"> (https://canvas.pointloma.edu/courses/66436/assignments/891692)</a>	due by 11:59pm
Wed Apr 26, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891694">WK8: Assignment: Malaria (Groups) (M5A2)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891694"> (https://canvas.pointloma.edu/courses/66436/assignments/891694)</a>	due by 11:59pm
	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891678">WK8: Discussion: Genetic Engineering of Mosquitos (M5D2)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891678"> (https://canvas.pointloma.edu/courses/66436/assignments/891678)</a>	due by 11:59pm
Fri Apr 28, 2023	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891682">End-of-Course Evaluation</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891682"> (https://canvas.pointloma.edu/courses/66436/assignments/891682)</a>	due by 11:59pm
	 <a href="https://canvas.pointloma.edu/courses/66436/assignments/891664">WK8: Final Exam (Honorlock)</a> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891664"> (https://canvas.pointloma.edu/courses/66436/assignments/891664)</a>	due by 11:59pm

Date	Details	Due
	 <b><a href="#">WK8: Group Member Evaluation</a></b> <a href="https://canvas.pointloma.edu/courses/66436/assignments/891665">https://canvas.pointloma.edu/courses/66436/assignments/891665</a>	due by 11:59pm