POINT 1902 LOMA NAZARENE UNIVERSITY	**Biology Department** **BIO3023: Introduction to Oceanography Lecture (3) & Lab (1)** **4 Units**
Fall 2020	

"Praise the Lord from the earth, you great sea creatures and all ocean depths,"

– Psalm 148:7

Meeting days: Lecture: Mon., Wed., Fri. Lab: Tues.	**Instructor title and name:** Dr. Walter Cho
Meeting times: Lecture: 11-11:55AM (PT) Lab: Mon., 2:45PM-6:15PM (PT)	**Phone:** 619-849-2398
Meeting location: Lecture on W: via Zoom (link on Canvas) Lab: asynchronous activities	**Email:** wcho@pointloma.edu
Final Exam: Fri., 12/4/2020, 10:30AM-1PM (PT)	**Office location and hours:** Rohr Science 134; Office hours via Zoom (link on Canvas): Tuesdays, 10-11AM, 3:30-5:30, Wed, 12-1:15PM (PT)

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

From the course catalog:

An introduction to the interdisciplinary study of the oceans, including a survey of geological, chemical, physical and biological oceanography. Includes consideration of current research methods and exploration of marine systems. Lecture, lab and fieldwork.

Prerequisite(s): BIO 2011.

Welcome to BIO3023! In this course we are going to study one of God's amazing creations, the oceans. BIO323 is an introduction to the field of oceanography. The ocean is a complex environment and as such the field of oceanography is interdisciplinary by its very nature. This course will provide an overview of the four main disciplines of oceanography: geological, chemical, physical, and biological oceanography. This course will involve a combination of lecture, labs/field trips, writing, and a discussion of published literature about current events related to the field. Upon completion of this course, you will have a greater understanding of the different physical, chemical, and biological factors that influence the ocean environment and its inhabitants, as well as a greater appreciation for the beauty and wonder of God's Creation around us and your place in it.

COURSE LEARNING OUTCOMES

IDEA Center – Course Goals:

1) Gaining a basic understanding of the subject (e.g., factual knowledge, methods, principles, generalizations, theories)
3) Learning to apply course material (to improve thinking, problem solving, and decisions)
11) Learning to analyze and critically evaluate ideas, arguments, and points of view

- You will be able to analyze, evaluate, and apply the model of Plate Tectonics to the study of geological features of ocean basins. (1,3)
- You will be able to analyze and interpret the origin, distribution, and evolution of ocean sediment. (1,3)
- You will be able to evaluate the effects of temperature, pressure, and salinity on the density, layering, and dynamics of the oceans. (1)
- You will be able to integrate and evaluate the general circulation of the atmosphere and oceans. (1)
- You will be able to analyze and assess the origin and effects of waves, tides, and ocean currents. (1,3)
- You will be able to classify and analyze the pelagic and benthic environments of the ocean. (1)
- You will be able to analyze and evaluate the interactions and effects of the biological, physical, and chemical components of the oceans in the context of marine habitats. (1,3)
- You will be able to discuss ocean policy and analyze it from a scientific and social perspective. (3,11)
- You will reflect on and articulate your views about the beauty and wonder of God's Creation and your place in it.

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

Garrison, T., & Ellis, R. (2014). *Oceanography: an invitation to marine science*. 9th Ed. ISBN: 9781305105164

Additional reading and articles as assigned for class discussions and posted on the course site.

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 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 meeting the course learning outcomes. The time estimations are provided in the Canvas modules.

ASSESSMENT AND GRADING

Grades will be based upon a straight percentage of the total possible points available in this course and will include the following requirements:

Approximate Grading Scale:

93-100 = A	90-92 = A-	88-89 = B+	83-87 = B	80-82 = B-	78-79 = C+
73-77 = C	70-72 = C-	68-69 = D+	63-67 = D	60-62 = D-	00-59 = F

Course Requirements:	**% Value of Final Grade:**
EXAMS:	
Exam #1	10%
Exam #2	10%
Final Exam	25%
LAB/FIELD PARTICIPATION & REPORTS	25%
QUIZZES/ASSIGNMENTS	20%
ATTENDANCE/PARTICIPATION	10%
TOTAL	**100%**

Course Requirements in Detail:

A. Lecture:

The lectures will follow the tentative "Schedule of Activities" attached to your syllabus. Due to limitation in time, lectures will cover important key concepts but will not cover all of the information important for this course. You will need to read the appropriate chapters before the lecture to be best prepared for lecture and to participate in classroom discussions. Keep up with the course material and do not be afraid to ask questions. Lectures on Wednesday will be synchronous via Zoom. Lectures on Monday and Friday will be asynchronous.

B. Exams:

There will be 2 exams (10% of final grade each) and a Final Exam (25% of final grade). Each exam is objective and can consist of multiple-choice, matching, short answer and true/false type questions. There will also be some application questions including synthesis and analysis of important concepts as well as essay/discussion questions. Each exam will only cover material since the previous exam; however, fundamental concepts introduced early on will need to be remembered to address concepts throughout the course. The Final Exam will be comprehensive, covering topics from the 4th Unit of the course as well as the first 3 Units. Exams will be deployed using the Honorlock system in Canvas.

All materials in the class are potential test topics. This includes lecture materials from the required textbook (text, illustrations), lab information, any handouts or additional reading assignments you might receive, and in-class discussions on relevant topics or questions of interest.

TENTATIVE dates for the exams are: **Exam #1 – September 11, 2020 [F]; Exam #2 – October 9, 2020 [F]; FINAL EXAM – December 4, 2020 [F, 10:30 AM–1:00 PM].** Except for the final exam, dates are subject to change depending on progression through required course material.

C. Lab/Field Participation & Assignments:

Previously, the lab component of the course emphasized field research techniques. Due to the "relational remote" format, the labs have been modified to use publicly accessible real-world data to analyze oceanographic data. Labs will be asynchronous with open office hours to help students complete the assignments.

D. Quizzes/Assignments:

Quizzes and assignments may be given throughout the course. These will focus on the reading and lecture materials and are worth 20% of your final grade.

E. Class Attendance/Participation:

Class attendance /participation is a very important part of learning and will count for 10% of your final grade. You are responsible for notifying the instructor of any known excused absence at least one week before the date of that absence.

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 beginning of the class session when they are due—including assignments posted in Canvas. Incompletes will only be assigned in extremely unusual circumstances.
Deadlines will be strictly adhered to. Unless otherwise specified, typically 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

While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic adjustments, modifications or auxiliary aids/services. At Point Loma Nazarene University (PLNU), these students are requested to register with the Disability Resource Center (DRC), located in the Bond Academic Center (DRC@pointloma.edu or 619-849-2486). The DRC's policies and procedures for assisting such students in the development of an appropriate academic adjustment plan (AP) allows PLNU to comply with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. After the student files the required documentation, the DRC, in conjunction with the student, will develop an AP to meet that student's specific learning needs. The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each semester. The AP must be implemented in all such courses.

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.

PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all **synchronous** class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions (virtual or face-to-face), 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. 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 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.

Typically, lectures on Wednesday will be synchronous class sessions over Zoom and lectures on Monday and Friday will often be asynchronous. Labs will also be asynchronous.

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 environment, you'll need to meet the minimum technology and system requirements; please refer to the *Technology and System Requirements* information. Additionally, students are required to have headphone speakers compatible with their computer available to use. If a student is in need of technological resources please contact student-tech-request@pointloma.edu.

Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.

TENTATIVE COURSE SCHEDULE (this will most likely change)

Week	Week of	Lab	Topic	Chapters in Garrison	Notes
1	**8/16/2020**	No Lab	Introduction/History of Oceanography/Modern Methods	2, Appendices 4, 5	
2	**8/23/2020**	OOI Intro Lab	Seawater Chemistry	6	
3	**8/30/2020**	OOI Data Lab	Seawater Chemistry; Ocean acidification	7, 386, 525-527, Suppl. reading	
4	**9/6/2020**	OOI Ocean Chemistry Lab	Seawater Chemistry; Ocean acidification	7, 386, 525-527, Suppl. reading	**1st Exam – 9/11/2020**
5	**9/13/2020**	OOI Geology – Plate tectonics Lab	Earth's Interior/Plate Tectonics; Ocean Basins	3, 4	
6	**9/20/2020**	OOI Geology – Seafloor changes Lab	Benthic Communities	472-476, Suppl. reading	
7	**9/27/2020**	OOI Hydrothermal vent community lab	Atmospheric Circulation	8	
8	**10/4/2020**	OOI Hydrothermal vent community lab (cont.)	Atmospheric Circulation	8	**2nd Exam – 10/9/2020**
9	**10/11/2020**	OOI Hydrothermal vent community lab (cont.)	Ocean Circulation; ENSO	9, Suppl. reading	
10	**10/18/2020**	No Lab	Waves; Tides	10, 11	
11	**10/25/2020**	OOI Ocean Physics Lab	Productivity	14	
12	**11/1/2020**	OOI Primary Productivity Lab	Productivity	14, 13.7, 13.8	
13	**11/8/2020**	OOI Anoxic Events Lab	Marine Communities	16, Suppl. reading	
14	**11/15/2020**	No Lab	Marine Communities, Resources	16, 17, Suppl. reading	
15	**11/22/2020**	MPA Lab	Marine Resources	17, Suppl. reading	11/25-27/18: No Class (Thanksgiving)
16	**11/19/2020**		Finals Week		**FINAL: 12/4/2020, 10:30AM-1PM**