PLNU forward

Biology Department

BIO323: Introduction to Oceanography

3 Units

Fall 2018

Meeting days: Lecture: Tues. & Thurs. Lab: Monday	**Instructor title and name:** Dr. Walter Cho
Meeting times: Lecture: 11AM – 12:15PM Lab: 2:45PM – 5:45PM	**Phone:** 619-849-2398
Meeting location: Lecture: Taylor 311 Lab: Taylor 311	**E-mail:** wcho@pointloma.edu
Final Exam: Tues., 12/11/18, 10:30AM-1PM	**Office location and hours:** Gym Lot, Trailer 6 Mon. 11AM-1PM, Thurs. 9-10:30AM, or by appt.

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 211.

Welcome to BIO323! 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. S. (2012) *Oceanography: An Invitation to Marine Science*. 8th Ed. Cengage Learning, Belmont: 640 pp. ISBN: 9781111990848

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

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.

B. Exams:

There will be 2 exams (10% final grade each) and a Final Exam (20% 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.

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 – October 2, 2018 [T]; Exam #2 – November 6, 2018 [T]; FINAL EXAM – December 11, 2018 [T, 10:30 AM–1:00 PM]**. Except for the final exam, dates are subject to change depending on progression through required course material.
NOTE: See above for make-up policy for exams.

C. Lab/Field Participation & Assignments:

The field trips and labs have been designed to expose the students to as many possible different aspects and potential interests of marine science in general and biological oceanography in particular. Because of the opportunity for exciting & significant scientific discovery and observation during these trips, attendance at scheduled lab activities and full completion of lab reports is mandatory and will constitute 20% of your grade. Absences must be excused ahead of time and unexcused absences for labs will count significantly against this portion of your final grade as lab makeup work will not be accepted when an excused absence is not given/recognized. A good portion of the "laboratory" component of this class will take place in the field where direct observations of phenomena can be made. Please see the tentative schedule for labs below.
NOTE: The weather may impact what we can do in the field. Flexibility and adaptability is an important part of marine research and something we all may experience this semester.

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.

Weekly in-class exercises and select assignments throughout the semester will be graded **CREDIT/NO CREDIT**. These will be clearly identified when assigned. Credit for these assignments will be awarded only if **ALL** of the detailed specifications required for the specific assignment are met. Assignments may be resubmitted once through the use of **TOKENS** (see below).

TOKENS: Each student starts the semester with 3 TOKENS, which can be exchanged for either: a) a *24-hour extension* (requests must be submitted BEFORE the assignment is due) or b) a *resubmission* of a revised assignment (requests for revision must be submitted within 24-hours after the graded assignment has been returned). In order to use a TOKEN, you must both email me and submit a COMMENT on the assignment in Canvas to let me know your intention of using your TOKEN. Your email and COMMENT should: 1) have "Token Request" in the Subject header 2) state whether you are using the TOKEN to request a 24-hour extension or resubmission of an assignment, and 3) name the specific assignment.

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***.***

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. You may request a 24-hour extension through the use of TOKENS (see TOKENS above)

FINAL EXAMINATION POLICY

Successful completion of this class requires taking the final examination **on its scheduled day, Tuesday, 12/11/18, 10:30AM-1PM**. The final examination schedule is posted on the Class Schedules site. No requests for early examinations or alternative days will be approved.

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 accommodations. At Point Loma Nazarene University, these students are requested to file documentation during the first two weeks of the semester with the Academic Support Center (ASC), located in the Bond Academic Center. This policy assists the University in its commitment to full compliance with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 (a) prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. Once the student files documentation, the ASC will contact the student's instructors and provide written recommendations for reasonable and appropriate accommodations to meet the individual learning needs of the student.

The PLNU Disability Resource Center (DRC) can be reached by phone at 619-849-2486 or by e-mail at DRC@pointloma.edu. See Disability Resource Center for additional information. For more details see the PLNU catalog Accommodations.

Students with learning disabilities who may need accommodations should also discuss their needs with the instructor during the first two weeks of class.

PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If the student is absent from more than 10 percent of class meetings, the faculty member can file a written report which may result in 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. See Academic Policies in the Undergraduate Academic Catalog.

TENTATIVE COURSE SCHEDULE (this will most likely change)

Week	Week of	Lab	Topic	Chapters in Garrison	Notes
1	**8/27/2018**	No Lab	Introduction/History of Oceanography/Modern Methods	2, Appendices 4, 5	
2	**9/3/2018**	No Lab	Seawater Chemistry	6	9/3/18: No Class (Labor Day)
3	**9/10/2018**	Seawater Properties	Seawater Chemistry; Ocean acidification	7, 404-405, 531-532, Suppl. reading	
4	**9/17/2018**	OOI Data Lab	Earth's Interior/Plate Tectonics; Ocean Basins	3, 4	
5	**9/24/2018**	Bathymetry	Benthic Communities	482-488, Suppl. reading	
6	**10/1/2018**	Marine Sediments/ Deep-sea Mining Discussion	Atmospheric Circulation	8 (227-234)	**1st Exam – 10/2/18 in class**
7	**10/8/2018**	Sediment grain size	Atmospheric Circulation	8 (234-258)	
8	**10/15/2018**	Atmospheric Circulation	Atmospheric Circulation; Ocean Circulation	8, 9	10/19/18: No Class (Fall Break)
9	**10/22/2018**	Ocean Circulation	Ocean Circulation; ENSO, Waves	9, Suppl. reading	
10	**10/29/2018**	Waves	Waves; Tides	10, 11	
11	**11/5/2018**	Dog Beach [-0'@3:26PM]	Productivity	14	**2nd Exam – 11/6/18 in class**
12	**11/12/2018**	Plankton Lab	Productivity	14, 13.7, 13.8	
13	**11/19/2018**	Birch Aquarium	Marine Communities	16, Suppl. reading	11/21-23/18: No Class (Thanksgiving)
14	**11/26/2018**	Intertidal Lab [-0.7'@5:48PM]	Marine Communities, Resources	16, 17, Suppl. reading	
15	**12/3/2018**	Marine Biodiversity	Marine Resources	17, Suppl. reading	
16	**12/10/2018**		Finals Week		**FINAL: 12/11/18,10:30-1PM**