

# BI380 & BI380L - Oceanography Syllabus - Fanuchanan (Fall) 2021

Lecture Location: SC 200                      Professor: Daniel P. Lindstrom  
Meeting time: T, TH - 8:00 - 9:20      Office/Lab Science Bldg. 102B.  
Lab Location: SC 250B                      Office Hours: T&TH: 9:30 - 11:30AM, F: 11 AM-1PM  
Lab/Field time: F - 8:00 - 10:50 (other hours by appointment only)

## Overview

Oceanography is an upper division course for the Biology Major. Students should already have the firm foundation of the Biology core completed. This will be drawn upon in the integration of the diverse areas this course addresses.

## Catalog course descriptions

**BI380** - This lecture is an introductory survey of the biological, physical, chemical, geological and meteorological aspects of the oceans and their basins including history of oceanographic studies and techniques. The course consists of three hours of lecture weekly. The lab, BI380L MUST be taken concurrently. Prerequisite: BI100, BI100L, BI157, BI157L or equivalent and MA161a or higher. Co requisite: BI380L

**BI380L** - Laboratory portion of BI380 and MUST be taken concurrently. The course consists of one three-hour laboratory period per week. Co requisite: BI380.

## Intended Course Student Learning Outcomes (SLOs)

The objectives of this course (along with the associated lab BI380L) are based on, but not limited to, those set forth in the preface of our chosen text. The details of how the instructor guides students to meet these objectives vary somewhat, but the common intended outcomes are as follows:

### Course SLO Matrix

SLOs (Course Student Learning Outcomes)	PLOs (Program SLOs)	ILOs (Institutional SLOs)	Assessment Method
1. To gain thorough understanding of the physical, chemical, geological, biological and meteorological processes that shape aquatic ecosystems globally.	PLOs 1a, 1b, 1c, 2, 3	ILOs 1, 2, 3, 4, 5, 6, 7	Written exams, written assignments, oral presentation, lab/field observation
2. Development of an eye for oceanic processes and the ways in which these forces shape aquatic communities.	PLOs 1a, 1b, 1c, 2, 3, 4, 7	ILOs 1, 3, 4, 5, 6, 7	Written exams, written assignments, oral presentation, lab/field observation
3. A closer examination of organisms studied in other BI courses within the context of Oceanic physical forces, habitat types, community dynamics, life history traits and human impacts.	PLOs 1a, 1b, 1c, 4	ILOs 1, 3, 4, 5, 6, 7	Written exams, written assignments, oral presentation, lab/field observation
4. Develop field skills and familiarity with field techniques.	PLOs 1a, 1b, 1c, 2, 3, 4, 5, 6, 7	ILOs 1, 2, 4, 5, 6, 7	Written exams, written assignments, oral presentation, lab/field observation
5. Introduce the variety of professional niches available within this field of study.	PLOs 1a, 1b, 1d, 2, 4, 7	ILOs 4, 5, 6, 7	Lab/field observation
6. Identify the challenges facing the next generation of scientists and where state of the art technology is likely to be employed in the future.	PLOs 1a, 1b, 1c, 1d, 2,	ILOs 1, 2, 4, 5, 6, 7	Written exams, written assignments, oral presentation, lab/field observation
7. Develop observational skills and the ability to relay knowledge to others.	PLOs 1a, 1b, 1c, 2, 3, 4, 5, 6, 7	ILOs 1, 2, 3, 4, 5, 6, 7	Written exams, written assignments, oral presentation, lab/field observation

The specific learning objectives for each topic can be found within the text itself as "Key Concepts" listed at the beginning of each chapter, explained in order in the text and then summarized again at the end of each chapter.

## LECTURE:

The text provides a loose framework which the course will revolve around. By no means will this be the only resource for the course. Frequently I will hand out reprints and provide additional materials which will add to and enhance the text (also posted on Moodle). Some lectures will be designed to clarify concepts covered in the text, others will introduce additional concepts that I feel are important or interesting. Since I would like to expose students to the widest variety of areas within this field, I will actively seek out guest lecturers whenever possible. In order to take advantage of opportunities, the lecture schedule should be viewed as a general outline of the course which is subject to change as the semester unfolds. I will update the schedule as needed and inform the class of these changes with a fair lead time (a minimum of 2 days for lecture and supporting materials, 1 week for exam dates and hand-in deadlines). If you miss class for any reason, it is your responsibility to become aware of these changes and prepare accordingly. **All material assigned from text, handouts, supplemental readings, laboratory/field activities, and assignments, lecture content of professor and any guest lecturers are fair game for exams.**

## General Lecture Attendance Policy:

It is my hope and challenge that I would teach a course that would be impossible to obtain a grade above C without attending all lecture and lab activities as well as being attractive enough to warrant your wanting to be in attendance for fear of missing something truly enjoyable. I also realize the constraints on you as a complete student and that there is life and demands beyond my classroom. To this end I will not take attendance in lecture and it will not be counted against you but be warned that even the most vigorous study of the text will not amply prepare you for the material covered in examinations. If you must miss lecture, for whatever reason, you are still responsible for all material covered and remedial material will not be given to you without an adequate excuse for absence.

## LAB/FIELD:

Attendance at scheduled lab activities is mandatory and will constitute a major portion of your lab/field course grade along with your participation in these activities and any associated assignments. Absences must be excused ahead of time and remedial work assigned to make up for missing the activity. An unexcused absence will result in an NC for 5% of your final grade for each lab absence, even if it exceeds the 40% allotted in the calculation of your final lab grade (in other words, don't miss labs!). The "laboratory" component of this course is a misnomer in that a major objective of this part of the course is to get field experience. By field experience I mean both getting your feet literally wet and also getting out to observe people who work in this field and where possible participate in these activities. Since weather, both fair and foul, make for opportunities and obstacles for the learning objectives of this course we will need to be flexible and prepared to take advantage of favorable but unpredictable circumstances (eg. very clear and calm weather).

## **Texts and Required Reading:**

Textbook: Oceanography: An Invitation To Marine Science. 9th Ed., 2016, 2013, Tom Garrison, Cengage Learning, Boston, MA (Previous editions may suffice with approval of instructor, but student will be required to check it against the 9th edition for any additional/changed materials). If you can find a used or new hardcopy of this text that will be great.

Handouts: Various excerpts, popular articles and scientific journal articles given in class prior to pertinent lecture or lab/field activity and/or posted to Moodle after class.

## **Special Needs**

Students with special needs must make arrangements through the ADA office. The University makes every attempt to accommodate such requests (see below). Students who cannot meet the requirements of a particular field trip must discuss the problem with me several days in advance.

## **UOG Disabilities Policy**

In accordance with the Americans with Disabilities Act (ADA) of 1990 and the Rehabilitation Act of 1973, the University of Guam does not discriminate against students and applicants on the basis of disability in the administration of its educational and other programs. The University offers reasonable accommodations for a student or applicant who is otherwise qualified, if the accommodation is reasonable, effective and will not alter a fundamental aspect of the University's program nor will otherwise impose an undue hardship on the University, and/or there are not equivalent alternatives. Students are expected to make timely requests for accommodation, using the procedure below.

## **ADA Accommodation Services**

If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact the Student Counseling and Advising Service Accommodations office to discuss your specific accommodation needs confidentially. You will need to provide Ms. Sallie Sablan with an accommodation letter from the Student Counseling and Advising Service Accommodations counselor. If you are not registered, you should do so immediately at the Student Center, Rotunda office #4, Ph/TTY.: 735-2460, to coordinate your accommodation request.

## **UoG Tobacco-Free Policy**

Pursuant to Board of Regents Resolution No. 13-24, the University of Guam (UOG) has a total ban on the sales, smoking and the distribution and use of tobacco and tobacco-based products on the UOG Campus, and properties.

The purpose of this policy is to protect the public health and welfare by prohibiting smoking and the use of tobacco products or simulated smoking devices, including but not limited to E-cigarettes, on the UOG campus and properties; to guarantee the right of nonsmokers to breathe smoke-free air, while recognizing that the need to breathe smoke-free air shall have priority over the desire to smoke; and to encourage a healthier, more productive living/learning environment for all members of our University community.

## FERPA

UOG is bound by the policies of the Family Educational Rights & Privacy Act. This means your educational records and personal information are protected by law. Please consult the FERPA web site for more information: <http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html>

### Evaluation Guidelines:

#### Lecture:

Midterm Exams <sup>1</sup>	70% (25, 25, 20% each respectively)
Final Exam <sup>1</sup>	30%

#### \*\*Lab:

Lab/Field Participation <sup>2</sup>	40%
Individual Project Proposal <sup>3</sup>	10%
Research Paper <sup>4</sup>	25%
Oral Project Presentation <sup>3</sup>	25%

#### Approximate Grading Scale\*:

90-100 A	80-89 B	70-79 C	60-69 D	0-59 F
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\*In general, I will assign “whole” grades, but will reserve the right to give + or – final grades when deserved\*

<sup>1</sup>The first through third mid-term exams will each be worth 20% or 25% of the final lecture grade and cover material from their respective lectures and readings (these percentages may be adjusted slightly according to amount material covered). The final exam will be worth 30% of the final grade and will contain information from the last 4 Text chapters as well as some cumulative/conceptual aspects of the whole semester’s lectures and readings.

<sup>2</sup>As described above, this section is based on attendance and participation. See above for penalty of unexcused absences. All school sponsored activities (field trips, athletic events, concert, and drama tours, etc.) that may require your missing class must be cleared with the professor in the first two weeks of the course. Students must come fully prepared for each field activity with proper hiking/field gear including proper clothing, drinking water, mask, snorkel, fins and any other needed skin-diving equipment.

<sup>3</sup>An individual project will be discussed with the whole class during the first lecture and lab days and mutually decided upon by the student and professor and teaching by Sept. 3rd. A formal proposal for the project will be due by Sept. 17th (this first "draft" will be worth 10% of your final lab grade), if the proposal is unsatisfactory it will need to be reworked until deemed satisfactory by the professor (required improvements will NOT result in a higher score than your 1<sup>st</sup> draft). This project will be field oriented and can take many routes but will emphasize exercising the student’s powers of scientific observation. Each project will culminate in a 20-minute presentation to the rest of the class at the end of the semester on indicated lab dates. Student projects/presentations will be graded on quality, content and completeness, presentation

ability and professional approach, thoroughness of preparation, and knowledge of supporting literature and be worth 25% of your final lab grade.

<sup>4</sup>A formal writing up of the results of your project will be due by Friday Nov. 30<sup>th</sup>. This will be in an abbreviated format of a formal research manuscript that will include Title, Abstract, Introduction, Methods and Materials, Results, discussion and Citations and be worth 25% of your final lab grade.

### **Guidance on Alternate Grading Option**

For the Fanuchanan 2021 semester, UOG will again be offering the alternative grading option. For each undergraduate course completed, students will have the option of replacing their letter grade earned with an alternative grade that will not affect GPA calculations. Forms are available from Admissions & Records, and deadlines correspond with voluntary and involuntary withdrawal deadlines. For more information, contact your school or college dean's office. Think carefully, and talk through your options with a trusted advisor, before exercising this option. It is up to YOU to choose this option and complete all necessary paperwork with the Registrar to make this happen. Your Instructor will turn in the grade you earn and should you choose an alternate grading method, your grade will automatically be changed to the equivalent alternate one.

### **LECTURE SCHEDULE:**

<u>DAY/DATE</u>	<u>LECTURE/LAB TOPIC</u>	<u>TEXT READING</u>
Thur. Aug. 19	Course introduction, syllabus explanation	Ch. 1
Tue. Aug. 24	An Ocean World, History of Marine Science	Ch.1,2
Thur. Aug. 26	Plate Tectonics, Geological Oceanography	Ch. 3, Reserve Tue.
Tue. Aug. 31	Continental Margins, Ocean Basins	Ch. 4
Thur. Sept. 2	Sediments and sedimentation	Ch. 5
<b>Fri. Sept. 3</b>	<b>Lab project topic selected in class</b>	
Tue. Sept. 7	Catch up and review for exam 1	
<b>Thur. Sept. 9</b>	<b>Exam 1</b>	
Tue. Sept. 14	Seawater chemistry, Chemical Oceanography	Ch. 6, Reserve
Thur. Sept. 16	Ocean Physics, Physical Oceanography	Ch. 7, Reserve
<b>Fri. Sept. 17</b>	<b>Lab project Formal Proposal due by this date</b>	
Tue. Sept. 21	Atmospheric Circulation and Weather	Ch. 8
Thur. Sept. 23	Ocean Circulation	Ch. 9
Tue. Sept. 28	Waves, Wave Dynamics & Wind Waves	Ch. 10
Thur. Sept. 30	Waves Cont.: Tsunami, Seiches & Tides	Ch. 11, Handout
Tue. Oct. 5	Catch up and review for exam 2	
<b>Thur. Oct. 7</b>	<b>Exam 2</b>	

**Fall Break Oct. 11-16**

**LECTURE SCHEDULE CONT.:**

DAY/DATE	LECTURE TOPIC	TEXT READING
Tue. Oct. 19	Coasts	Ch. 12
Thur. Oct. 21	Coasts Cont.	Ch. 12
Tue. Oct. 26	Life in fluid	Handout
Thur. Oct. 28	Life in the Ocean	Ch. 13
Tue. Nov. 2	All Souls Day - No Class	
Thur. Nov. 4	Phytoplankton, Algae and Plants	Ch. 14, Reserve
Tue. Nov. 9	Catch up and review for Exam 3	
Thur. Nov. 11	Veteran's Day - No Class	
<b>Tue. Nov. 16</b>	<b>Exam 3</b>	
Thur. Nov. 18	Marine Animals I: Invertebrates	Ch. 15
Tue. Nov. 23	Marine Communities I: Plankton & Nekton	Ch. 16, Handout
<b>Thur. &amp; Fri. Nov. 25 &amp; 26 Thanksgiving Break *No Class or Lab*</b>		
Tue. Nov. 30	Marine Comms. II: Benthos, Intertidal & Deep-Sea	Ch. 16, Handout
	<b>Lab project Formal Writeup due by this date</b>	
Thur. Dec. 2	Marine Resources	Ch. 17
Tue. Dec. 7	Environmental Concerns	Ch. 18
Tue. Dec. 9	Catch up and review for Final Exam	
<b>Tue. Dec. 10</b>	<b>Last Lab</b>	
<b>Tue. Dec. 14</b>	<b>Final Exam 8 - 9:50 AM</b>	

**LAB/FIELD SCHEDULE:**

We have 15 Friday Lab Days (I will save the last 2 for student presentations in the classroom). Below is a list of potential field excursion destinations. Weather conditions and host schedules preclude any attempt at planning too far ahead so lab activities/trips will be announced in the preceding lecture.

**\*\*\*Lab Options:**

In Lab Orientation, Ipao Beach/Tumon Marine Reserve Snorkel, Underwater World and Behind the Scenes Tour, Aquaculture Facility, Research Ship Tour, Talofoto River Tour, Asmifinis/Sella Lookout/River Hike, Deep Sea Fishing Trip/Pelagic and Oceanographic Sampling, Marine Laboratory Tour, Fish Market/Auction Trip, National Weather Service Tour, Cocos Island, Coastal Geology Trip (Talofoto Caves)

**\*\*\*We probably will not be able to do all of these and we will most likely take advantage of some unlisted opportunities that will surface during the semester.**

We will meet/leave promptly via carpool at 8:00 AM from the Science Building for these trips to a location announced in the lecture period prior to the field/lab day. Since travel time is of the essence for these trips we will leave promptly and students who miss the carpool will get an unexcused absence for that field/lab activity. In some cases, students will be allowed to meet the class at the field site at a time agreed upon during the lecture just prior to the field trip. Note that some of the lab/field activities may take place completely in the classroom. In any case that the weather demands canceling/rescheduling any particular excursion we will meet in the classroom those days.

### **UoG Covid Vaccination Requirements**

Students taking in-person classes for Fall 2021 MUST be fully vaccinated or have an approved accommodation submitted to the Student Health Office using the secure online HIPAA-compliant form at <https://url.uog.edu/submit-covid-info> by Sept. 24, 2021.

- Students attending in-person classes who are not currently vaccinated and do not have an approved accommodation will be required to receive their first COVID-19 vaccination by Aug. 25, 2021. Proof of vaccination should be submitted to the secure online HIPAA-compliant form at <https://url.uog.edu/submit-covid-info>.

NOTE: Because students taking in-person classes are required to be fully vaccinated or have an approved accommodation, weekly negative COVID-19 test results will no longer be accepted.

- Students who are seeking an accommodation must submit evidence of their medical reason, disability, or their sincerely held religious belief, practice, or observance to the EEO/ADA/Title IX office. Please contact Mr. Larry Gamboa, Acting EEO/ADA/Title IX Director, from 8 a.m. to 5 p.m., Monday to Friday, at 735-2971 or [lgamboa@triton.uog.edu](mailto:lgamboa@triton.uog.edu). (See "Welcome Back, Tritons!" in Moodle for details)

### **Student Support**

The following is a list of resources that students can turn to when they need support:

- Problems with the course instructions or other content?  
Contact your Instructor for clarification and assistance.
- Technical problems with UOG Moodle system?  
Contact the UOG Moodle Help team by email at [moodlehelp@triton.uog.edu](mailto:moodlehelp@triton.uog.edu) or by phone at (671) 735-2620.
- Problems with WebAdvisor or GoTritons student email service?  
Contact the UOG Office of Information Technology (aka: the Computer Center) by email at [helpdesk@uog.edu](mailto:helpdesk@uog.edu) or by phone at (671) 735-2640.
- UOG Library Resources and Services  
Go online to <https://www.uog.edu/student-services/rfk-library/>
- UOG Student Services  
Go online to <https://www.uog.edu/student-services/enrollment-management-student-success/> to contact the Admissions and Records office, Financial Aid office, Student Life office, Housing and Residence, Counseling, Student Health, and other services.