BI380 & BI380L - Oceanography
Syllabus - Fanuchanan (Fall) 2024

Lecture Location: SC 200
Meeting time: T, TH - 8:00 - 9:20
Lab Location: SC 110
Lab/Field time: F - 8:00 - 10:50

Professor: Daniel P. Lindstrom
Office/Lab Science Bldg. 102B.
Office Hours: T&TH: 9:30 - 11:30AM, F: 11AM-1PM
(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,	ILOs1, 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 and higher 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

The University is committed to providing an inclusive and welcoming environment for all members of our community. Federal and local laws protect the University community from any act of sex discrimination. Such acts violate the essential dignity of our community members. If you need assistance with EEO (Equal Employment Opportunity) and/or Title IX concerns, please contact the Director of EEO/ADA & TITLE IX Office at 671-735-2244, 671-735-2971, TDD 671-735-2243 or eeo-ada@triton.uog.edu.

ADA Accommodation Services

For individuals covered under the ADA (Americans with Disabilities Act), if you are a ***student*** with a disability requiring academic accommodation(s), please contact the Disability Support Services Office to discuss your confidential request. A Faculty Notification letter from the Disability Support Services counselor will be provided to me. To register for academic accommodations, please contact or visit Sallie S. Sablan, DSS counselor in the School of Education, office 110, disabilitysupport@triton.uog.edu or telephone/TDD 671-735-2460.

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[1]	70% (25, 20, 25% each respectively)
Final Exam[1]	30%

****Lab:**

Lab/Field Participation[2]	40%
Individual Project Proposal[3]	10%
Research Paper[4]	25%
Oral Project Presentation[3]	25%

Approximate Grading Scale*:

90-100 A 80-89 B 70-79 C 60-69 D 0-59 F

In general, I will assign "whole" grades, but will reserve the right to give + or – final grades when deserved

[1]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 in lecture). 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.

[2]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 that will be discussed prior to the class.

[3]An individual or group project will be discussed with the whole class during the first lecture and lab days and mutually decided upon by the student and professor by **Aug. 30th.** A formal proposal for the project will be due by **Sept. 13th** (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 1st 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.

[4]A formal writeup of the results of your project will be due by **Tuesday Nov. 21st**. 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.

LECTURE SCHEDULE:

DAY/DATE	LECTURE/LAB TOPIC	TEXT & READING
Thur. Aug. 15	Course Introduction, Syllabus Explanation	
Tue. Aug. 20	An Ocean World	Ch.1
Thur. Aug. 22	History of Marine Science	Ch. 2
Tue. Aug. 27	Plate Tectonics, Geological Oceanography	Ch. 3, Oceanus
Thur. Aug. 29	Continental Margins, Ocean Basins	Ch. 4
Fri. Aug. 30	**Lab project topic selected in class**	
Tue. Sept. 3	Sediments and Sedimentation	Ch. 5
Tue. Sept. 5	Catch up and review for exam 1	
Tue. Sept. 10	**Exam 1**	
Thur. Sept. 12	Seawater Chemistry, Chemical Oceanography	Ch. 6, Oceanus
Fri. Sept. 13	**Lab project Formal Proposal due by this date**	
Tue. Sept. 17	Ocean Physics, Physical Oceanography	Ch. 7, Oceanus
Thur. Sept. 19	El Nino Video	
Tue. Sept. 24	Atmospheric Circulation and Weather	Ch. 8
Thur. Sept. 26	Ocean Circulation	Ch. 9
Tue. Oct. 1	Catch up and review for exam 2	
Thur. Oct. 3	**Exam 2**	
Oct. 7-12	**Fall Break - No Class**	
Tue. Oct. 15	Waves, Wave Dynamics & Wind Waves	Ch. 10
Thur. Oct. 17	Waves Cont.: Tsunami, Seiches & Tides	Ch. 11, Handout
Tue. Oct. 22	Coasts	Ch. 12
Thur. Oct. 24	Life in fluid	Handout
Tue. Oct. 29	Life in the Ocean	Ch. 13
Thur. Oct. 31	Phytoplankton, Algae and Plants	Ch. 14, Oceanus

LECTURE SCHEDULE CONT.:

DAY/DATE		LECTURE TOPIC	TEXT & READING
Tue.	Nov. 5	Marine Animals I: Invertebrates	Ch. 15
Thur.	Nov. 7	Catch up and review for Exam 3	
Tue.	**Nov. 12**	**Exam 3**	
Thur.	Nov. 14	Marine Communities I: Plankton & Nekton	Ch. 16, Handout
Tue.	Nov. 19	Marine Comms. II: Benthos, Intertidal & Deep-Sea	Ch. 16, Handout
Thur.	Nov. 21	Marine Resources	Ch. 17
		Lab Project Formal Writeup Due By This Date	
Thur.	Nov. 26	Environmental Concerns	Ch. 18
Thur. & Fri.	**Nov. 28 - 29**	**Thanksgiving Break *No Class or Lab***	
Tue.	Dec. 3	Catch up	
Thur.	Dec. 5	Catch up and review for Final Exam	
Fri.	**Dec. 6**	**Last Lab & Chowderpalooza (or Chowdahpaloozer if you are from Boston)**	
Tue.	**Dec. 10**	**Final Exam 8 - 9:50 AM**	

LAB/FIELD SCHEDULE:

We have 14 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, Snorkel Pool Clinic, Ipao Beach/Tumon Marine Reserve Snorkel, Underwater World and Behind the Scenes Tour, Wave Observation, Aquaculture Facility, Research Ship Tour, Talofofo 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 (Talofofo Caves).

***We 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 before and leave promptly via carpool at 8:00 AM from the Science Building for any 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. A WhatsApp group will be set up to facilitate convenient course communications.

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 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 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.