OCEA10 - Intro to Oceanography
Fall 2009
4 units

Instructor Information
Sara Di Fiori
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Phone extension- 3368
Office- NATS 208
Office Hours: MW 1:45-3:00
Tues 1:50-4:20
And by appointment

Class Meetings: Section #1324 MW 10:30-1:40
Section #1332 TTH 4:30-7:40

Classroom: NATS 206

Materials
Required Texts - (M) EXPLORING CALIF OCEANOGRAPHY LAB
MANUAL - NATURAL SCIENCE FACULTY

ESSENTIALS of OCEANOGRAPHY CUSTOM
THURMAN/TRUJILLO

• Calculator
• #2 pencils and erasers
Colored pencils
Rulers
Internet access: Lecture slideshows will be posted on the website as PDF files. They will be available for download and viewing for one week only. Slideshows are a supplement, not a substitute for lecture. Abuse of this courtesy (i.e. lowered attendance) will result in termination of postings.

Content
This introductory course in oceanography presents the ocean in terms of its physical chemical and biological environments. The topics include studies of: formation and modification of various wave types; tidal behavior; formation of water masses and ocean currents; beaches and the changing shoreline; coral reefs; physical and chemical properties of ocean water; marine environments; marine sediments; origin of sea floor and coastline features; the spreading sea floor and drifting continents.

Prerequisites
There are no prerequisites for this course, but eligibility for English 84 is recommended.

Methods of Evaluation

Grading

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<td>Quizzes</td>
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<td>Labs and assignments</td>
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- **Exams** - There will be three two-hour exams and one final exam (see schedule) consisting of essay questions, multiple choice, and diagrams. There will be a comprehensive final exam. **No Make-Up Exams Will Be Given!** Students who need to reschedule an exam, may do so ONLY by contacting me well in advance of the date the test is given. Otherwise, only a verifiable excuse (i.e. official doctor's note) will justify a make-up.

- **Quizzes** - A weekly quiz will be given on Monday, at the beginning of class. No make-ups will be given, and parking is not an excuse, **COME EARLY!**
ASSIGNMENTS- Some of the activities in this class are designated Alternate Site Activities (ASA's). These are hands-on projects that will be completed off campus at specified locations. Students will provide their own transportation to the locations, and must complete and turn in the Field Trip Waiver form during the second week of class. In-class activities, labs, ASA's and homework will count toward this portion of the grade. Labs and ASA's will be due at the beginning of class on the date that the next assignment appears on the course schedule.

PRESENTATION- Each student will present (15-20 min) demonstration on an approved topic of their choice to the group. Dates will be selected and put on the class calendar. More information to follow.

PARTICIPATION- Contributing to a respectful and scholarly atmosphere is expected of each student. Students who are absent more than two class meetings in a row, may be dropped from the course. However, do not assume that I've dropped you. Maintain responsibility for your enrollment status.

Participation on at least three ASA's is required.

Tips for succeeding in this course:

Although the material in this course is challenging, every student is capable of succeeding. Success will require diligence on the part of the student. This will require spending time on the subject outside of class. A general rule of thumb for success in a college class is to multiply the number of units by two, and spending that number of hours studying the material outside of class. Since Oceanography 10 is a four unit class, this means that you should expect to spend up to eight hours per week in individual review. By combining good study habits with visits to office hours, you will be amazed at your own progress and capacity for mastering scientific information! In addition, forming and meeting study groups consistently leads to higher performance on exams. Your peers are a tremendous asset!

It is also important to download appropriate lecture notes from the specified website prior to class. This way you will be able to focus on the class material while referring to the notes.

No Late Material Will Be Accepted

CHEATING RESULTS IN AN AUTOMATIC F!
Electronic Device Policy
Use of electronic devices such as PDA’s, Laptops, Cell Phones (especially text messaging) during class time is both inappropriate and considered rude behavior toward your classmates and instructor. *It will not be tolerated.* Use of such equipment can be made before class, after class, or during the break. If you cannot spend the duration of a class without using an electronic device, than this class is not for you.

Course Objectives
Students who pass this course will be able to:

1. Use the theory of plate tectonics to explain observed features of the Earth’s surface including continents and ocean basins, earthquakes, fossil remains, islands, mountains, oceanic ridges, trenches, and volcanoes. Also, they will be able to use observations of the Earth to assess the validity of the theory of plate tectonics.

2. Describe the chemical and physical properties of water and seawater, and explain these properties in terms of the behavior of atoms and molecules. Also, they will be able to explain how these properties affect the behavior and movement of seawater.

3. Describe and explain how the ocean and atmosphere interact with one another, especially how the ocean affects climate and the impact that global warming will have on the ocean.

4. Describe the surface and deep circulation of the ocean, and explain the observed motion of the ocean in terms of wind forcing, the Coriolis effect, and density differences.

5. Describe the formation of waves (wind-generated, internal, and tsunami), and explain how wave phenomena such as refraction, reflection, standing waves, and wave dispersion affect their propagation and characteristics (e.g., wavelength, height, period). Also, explain how and why waves change as they shoal, and how coastal variations can produce different breaking patterns.

6. Explain the observed daily and monthly cycles of the tides using the equilibrium and dynamic theories of the tides, and explain how local conditions (e.g., shoreline shape, weather) can affect tidal patterns.

7. Explain the origin of coastal features such as sandy and rocky beaches, headlands, coves, sea arches, sea stacks, wave-cut and marine terraces, barrier islands, spits, and tombolos in terms of wave conditions, tides, and changes in sea level.

8. Explain the origin, movement, modification, and deposition of marine sediments in terms of the physical, chemical, and biological conditions affecting them.

9. Describe and explain the spatial and temporal distribution of ocean primary productivity
(algae growth) in terms of the availability of sunlight and nutrients. Describe the flow of energy and nutrients into, through, and out of marine food webs, and analyze how human actions can disrupt food webs.

10. Describe special adaptations of marine organisms, and explain how these adaptations promote their survival and reproduction under the unique physical and chemical conditions found in the ocean.

11. Interpret contour maps, and find locations, measure distances, and take into account scaling factors on nautical charts. (Map Skills)

12. Solve problems using dimensional analysis, and calculate percentages, areas, and volumes. (Math Calculation Skills)

13. Prepare and analyze graphs, including time-series graphs, histograms, multivariate graphs, scatter plots, and pie charts. (Math Graphing Skills)

14. Make and describe observations, propose hypotheses and experiments to test hypotheses, and present an argument supporting or undermining hypotheses in terms of the observations.

Student Learning Outcomes:

- Students can identify the salient features of the basic concepts of oceanography. (This includes the ability to recall the definitions of the specialized vocabulary of oceanography.)

- Students recognize and can accurately articulate how the ocean affects humans’ lives and how human activities affect the ocean.

- Students can identify the key elements of the scientific method (hypotheses, tests, observations, conclusions/interpretation of observations) in popular accounts of scientific research in magazines, newspapers, etc.

IMPORTANT DATES

Last Day to Add (Full Semester Courses) Sept 11
Last Day To Drop and Be Eligible for a Refund Sept 11
Last Day to Drop Without Notation on Permanent Record Sept 25
Last Day to Drop with a “W” Nov 20