OCEANOGRAPHY: Spring 2013 — T Th 8:30-9:50 --CRN 31639 -- Room 2108

INSTRUCTOR: Debra S. Stakes

OFFICE HOURS: 10-11 am Tue and Fri; 1 pm Thur, or by appointment
Office room 2304, Phone# 546-3100 Ext. 2720, email - dstakes@cuesta.edu

TEXT: *Essentials of Oceanography* by Trujillo and Thurman, 10th Edition
eInstruction RF CPS clickers to be used in most class sessions
Additional information provided on myCuesta website or on reserve in library.

Goals

This class introduces the subject of Oceanography. It will emphasize the geological, chemical and physical processes that operate in the ocean setting and begin to explain how they influence or control marine ecosystems. The class will teach global themes using local examples. Peer collaboration and inquiry-based activities will be emphasized. This is a rigorous class designed to transfer to universities. It is appropriate for those seeking to satisfy their general education physical science requirements as well as those wishing to pursue additional Earth or Marine Science classes for which Oceanography is a prerequisite.

STUDENT LEARNING OUTCOMES FOR OCEANOGRAPHY:

Upon completion of this course the student will be able to:

1.Describe the process of scientific inquiry, commonly called the scientific method, and be able to apply the method as it pertains to oceanographic phenomena especially the origin of the Earth and atmosphere and the processes of plate tectonics..
2. Contrast the principal types of physiographic features on the seafloor and discuss their origin relative to plate tectonics.
3. Describe the origin of the four major types of marine sedimentary materials and predict the distribution of the types of sediments on the sea floor.
4. Explain the influence of the hydrologic cycle atmospheric circulation, changes in atmospheric carbon dioxide and marine life on the chemistry of seawater.
5. Understand how temperature, salinity, and density characteristics determine the physical structure of the ocean and produce deep ocean (thermohaline) circulation.
6. Discuss Earth's heat budget and the influence of oceanic and atmospheric processes in distributing heat.
7. Explain the Coriolis effect and characterize its role in the dynamics of ocean and atmospheric circulation.
8. Draw and discuss the idealized global wind system and its affect on global climate patterns and global ocean circulation.
9. Describe the characteristics, formation, and dynamics of wind-driven waves.
10. Explain the motions of the Earth-moon-sun system and the resulting ideal monthly tidal cycle.
11. Compare development of coastal landforms; provide examples of how man-made coastal structures affect shoreline processes.
12. Describe the impact of the tectonic setting and impact of global rise in sea level of major US coastlines
13. List and describe several types of ocean pollutants that especially affect the water quality of coastal zones.
14. Understand the global distribution of primary productivity and its relationship to the physical dynamics of ocean circulation.
15. Discuss the characteristics of several marine pelagic and benthic ecosystems and the adaptations of and niches of organisms within those ecosystems.

EVALUATION:

LECTURE EXAMS	**(2 @ 25%)**	**= 50%**
QUIZZES/HOMEWORK & CLASS ACTIVITIES		**= 20%**
CUMULATIVE FINAL EXAM		**= 30%**

Grades are assigned according to the following: **Above 90% =A, 89-80% =B, 79-65% =C, 64-55% =D, less than 55% =F.**

EXAMS: Study guides will be provided for each exam, which can be answered and turned in for extra credit. The ***cumulative*** final exam will be given only on **Thursday May 21 from 9:45 am to 11:45 am in the classroom. Do not make plans to leave campus until all your final exams are completed!** Exams will be mostly Scantron type questions with 1-3 short essay questions. The final exam will emphasize the Student Learning Outcomes listed above—the most basic principles for introductory oceanography. I expect you to learn the material well enough so that you can apply it to new situations during tests. To promote your efforts to learn and be able to use the material rather than just memorize it, I allow *handwritten* notes on one side of one 8.5X11 inch piece of paper during all exams.

QUIZZES, HOMEWORK, AND ACTIVITES: Open book take-home quizzes will be given for each chapter of the text with answers to be submitted using the eInstruction clickers. Activities will include hands-on experiments, class discussions and practice questions over assigned reading with points assigned on attendance and participation. Chapter quizzes and class activities will **not** be accepted late. A maximum of two excused absences is allowed during the semester for which chapter quiz answers may be submitted by email or on a Scantron card ***before*** class. Extra credit and supplemental homework assignments will be accepted up to 1 week after the official due date for **partial** credit. All work except for exams is collaborative. The Homework final grade is capped at 105%.

TENTATIVE "WEEKLY" SCHEDULE: (Note: Due dates and exam dates will be posted on myCuesta website)

TOPIC	TEXTBOOK	ADDITIONAL MATERIAL
Introduction and Earth's Origin	CHAPTER 1	EC: Blue Planet Video; Ballard TED lecture
Plate Tectonics and Margins	CHAPTER 2	Earth Revealed Worksheets 5 & 6 (required)
Features of the Sea Floor	CHAPTER 3	NOAA video 1,2,4,15 recommended;
Oceanic Sediments and Ocean History	CHAPTER 4	Ocean Drilling Program
EXAM #1 =25%		
Properties of Seawater	CHAPTER 5	Water Mass Homework NOAA video 7
Atmosphere-Ocean Connection	CHAPTER 6	NOAA 14 Hurricanes EC
Ocean Circulation	CHAPTER 7	NOAA video 8 required HW; El Nino EC
Waves and Tsunami Guest Lecture	CHAPTER 8	NOAA video 9 homework
EXAM #2 =25%		
Tides	CHAPTER 9	Earth Revealed #24 Worksheet required
Coastal Environments	CHAPTER 10	NOAA video 10,14
The Coastal Ocean and Marine Pollution	CHAPTER 11	Ocean Pollution, NOAA video 13
Marine Habitats and Biological Zones	CHAPTER 12, 13, 15	
The Ocean and Climate Change	CHAPTER 16	Climate Change EC project

FINAL EXAM = 30 % of final grade is cumulative and will include up to 30% of material from previous chapters. Exam will only be given on Tuesday May 21 from 9:45 am to 11:45 am in the classroom.

ATTENDANCE POLICY: Attendance is **critical** to your success in this class. There will be in-class collaborative activities, unannounced "quick quizzes" with bonus points that cannot be made-up. **If you intend to drop the course, fill out and turn in a drop slip prior to the Apr 14th drop date. Habitual absences and missed assignments may result in an instructor drop from this class, however, *do not assume that you will be dropped from the course if you stop attending class***. Missing class due to participation in an off-campus intercollegiate sporting event or similar collegiate activity is excused with prior approval. There will be no class on Thursday Apr 11 due to the instructor being in Death Valley for a field course. There will be online assignments due for this class.

CLASS RESOURCES: Lectures for this class will be a combination of traditional PowerPoint slides, videos, and in-class quizzes based on reading assignments, class participation, games and group work. Read the assigned material BEFORE class to be prepared for quick quizzes and discussions. Copies of all PowerPoint slides, exam study guides, homework, links to animations, and extra credit assignments will be posted on the myCuesta website. Additional resources are available online from the publishers' website. This semester we will be using CPS clickers in all sections of oceanography. The CPS clickers are required to participate in most of the practice question sessions and participation and extra credit points will be compiled from this. Purchase or borrow a Gen2 RF clicker from the bookstore and enroll the clicker at the eInstruction website using the class code: **K74149G136**

STUDENTS WITH DISABILITIES: ***Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact Disabled Student Services & Programs at Building 3300 on SLO Campus (546-3148) or on North Campus (591-6215) to coordinate reasonable accommodations for students with documented disabilities.***