| Syllabus for Laboratory in Oceanography— Eureka Campus | | | | |
|--|---------------------------------------|--|--|--|
| Semester & Year | Spring 2019 | | | |
| Course ID and Section # | OCEAN-11 E-5254 E-5255 | | | |
| Instructor's Name | Danny O'Shea | | | |
| Day/Time | Tuesday, Thursday / 10:05AM - 11:30AM | | | |
| Location | Humanities Bldg, Room HU125 | | | |
| Number of Credits/Units | 1 | | | |
| | Office location | HU 125A | | |
| Contact Information | Office hours | T Th 11:30AM – 12:30PM or by appointment | | |
| Contact Information | Phone number | n/a | | |
| | Email address | danny-oshea@redwoods.edu | | |
| Textbook Information | Title & Edition | Laboratory in Oceanography | | |
| | Author | Daniel C. O'Shea | | |
| | ISBN | n/a | | |

Course Description: An exploration of the conceptual material presented in OCEAN-10. Students will acquire practical laboratory and field experience using oceanographic skills, tests, and procedures. Laboratory exercises focus on chart reading, measurements of seafloor movement, seawater chemistry, wave celerity, and microscopic analysis. Field experience includes examination of coastal geology, wave and beach processes, habitats and marine organisms. Note: This course includes field trips to various marine and coastal areas. The College does not provide transportation.

Student Learning Outcomes:

- 1) Use the formal methodology of the scientific method as an inquiry-based tool to critically evaluate oceanic phenomena.
- 2) Demonstrate the skills necessary to utilize basic instruments, tools, and tests used in oceanography.
- 3) Apply classification systems to organize and identify marine features and organisms.

Special Accommodations

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Academic Honesty

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Emergency Procedures for the Eureka campus:

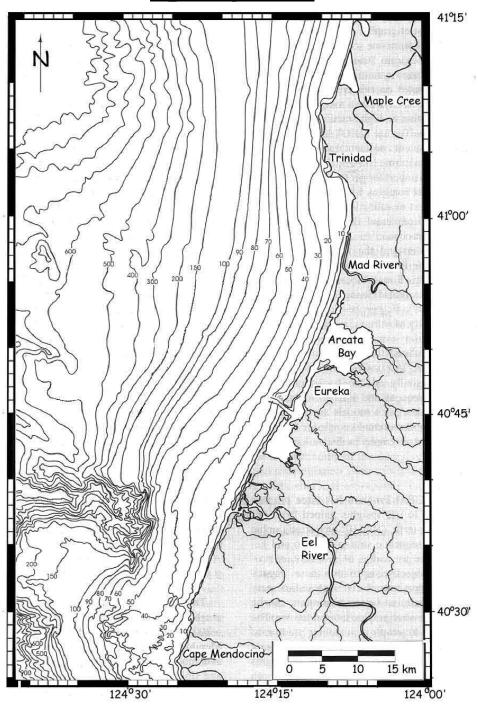
Please review the campus evacuation sites, including the closest site to this classroom (posted by the exit of each room). The Eureka **campus emergency map** is available at: (http://www.redwoods.edu/Eureka/campus-maps/EurekaMap_emergency.pdf). For more information on Public Safety, go to http://redwoods.edu/safety/ In an emergency that requires an evacuation of the building:

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- Keep streets and walkways clear for emergency vehicles and personnel.
- Do not leave campus, unless it has been deemed safe by the Incident Commander or campus authorities. (CR's lower parking lot and Tompkins Hill Rd are within the Tsunami Zone.)

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College of the Redwoods is committed to equal opportunity in employment, admission to the college, and in the conduct of all of its programs and activities.

Laboratory in Oceanography OCEAN-11 E-5254 E-5255 College of the Redwoods Spring 2019



Syllabus Instructor Danny O'Shea

| OCEAN-11 E-5254 E-5255 | Spring 2019 | TTh 10:05AM - 11:40AM |
|----------------------------|----------------------------------|-----------------------|
| Laboratory in Oceanography | Danny O'Shea | Room HU 125 |
| Office HU 125A | e-mail: danny-oshea@redwoods.edu | |

Course Description: Oceanography 11 a one-unit laboratory course that augments the conceptual material presented in the Introduction to Oceanography (OCEAN-10) course. Students will acquire practical laboratory and field experience in many oceanographic skills, tests, and procedures. Laboratory exercises will focus on chart reading and navigational skills, basic measurements of seawater chemistry, and other processes. Field experience will include examinations of coastal geology, wave and beach processes, and marine organisms and habitats.

Syllabus

| Week_ | Day-Month | <u>Laboratory</u> | <u>Topics</u> |
|-------|----------------------|--|---|
| 1 | 22 - Jan 24 - Jan | 1) Latitude, Longitude & Time | Nautical Charts |
| 2 | 29 - Jan 31 - Jan | 2) Coastal Geology & South Humboldt Bay | * Field Trip: Table Bluff: Beach Survey |
| 3 | 5 – Feb 7 - Feb | 3) Plate Tectonics Magnetic Reversals | *Hookton SI Sampling Plate Tectonics |
| 4 | 12 – Feb 14 - Feb | 4) Coastal Marine Sediments | *Hookton SI Sampling Grain Size Analysis |
| 5 | 19 - Feb 21 - Feb | 5) Salinity Temperature & Density | *Hookton SI Sampling T – S Diagrams |
| 6 | 21 - Feb 23 - Feb | 6) Marine Weather | *Hookton SI Sampling Marine Weather Charts |
| 7 | 26 - Feb 28 - Feb | 7) Water Masses & Ocean Circulation | *Hookton SI Sampling Water Stratification |
| 8 | 5 - Mar 7 - Mar | 8) Ocean Waves | *Hookton SI Sampling Ocean Wave Prediction |
| 9 | 12 - Mar 14 - Mar | 9) Tsunami | *Hookton SI Sampling Tsunami Travel Time |
| 10 | 19 - Mar 21 - Mar | Spring Break | No Lab |
| 11 | 26 - Mar 28 - Mar | 10) Seiche | *Hookton SI Sampling Tides |
| 12 | 2 - Apr 4 - Apr | 10) Tides and Amphidromes | *Field Trip to Arcata Marsh |
| 13 | 9 - Apr 11 - Apr | 11) Estuaries | *Hookton SI Sampling Phytoplankton |
| 14 | 16 - Apr 18 - Apr | 12) Primary Producers | *Hookton SI Sampling Zooplankton |
| 15 | 23 - Apr 25 - Apr | 13) Zooplankton and Benthos | *Hookton SI Sampling Ocean Animals |
| 16 | 30 - Apr 2 - May | 14) Marine Adaptations | *Hookton SI Sampling |
| 17 | 7 – May 9 - May | Final Project | Poster Presentation *Field Trip: South Jetty |

^{*} Indicates Field Trip. Be prepared for outdoor conditions such as sun, wind and rain.

Office Hours: Tuesday 11:30AM – 12:30PM or by appointment. Room 125A.

The best way to contact me is via e-mail at: danny-oshea@redwoods.edu

Course Learning Outcomes

- 1. Use the formal methodology of the scientific method as an inquiry-based tool to critically evaluate oceanic phenomena.
- 2. Demonstrate the skills necessary to utilize basic instruments, tools, and tests used in oceanography.
- 3. Apply classification systems to organize and identify marine features and organisms.

Grading:

Your performance on: the weekly laboratories, and field trips, group poster and presentation and lab participation determine the grade you receive. There are 1000 points available and grades are assigned by the percentage of total points as follows:

1000 - 900=A | 899 - 800=B | 799 - 700=C | 699 - 600=D | <599=F

| Grading Summary: | Points |
|-------------------------|-------------------------|
| > Laboratories | 600 (40 pts each lab) |
| Lab notes | 200 (25 pts each entry) |
| Poster and Presentation | 200 |
| Total Points: | 1,000 |

Oceanography -11/ Laboratory in Oceanography augments the Ocean-10 course, and culminates with a poster and presentation of the real-time oceanographic data collected during the semester. The oceanographic observations are derived form a variety of sources currently available for the Humboldt County coastline. The laboratory develops skills reading charts, using digital data loggers, collecting field observations, and interpreting laboratory and microscope data to evaluate and produce the final product. A primary goal of this class is to produce, as a group, a final project in the form of a poster that describing the region, the general oceanography setting, the type of substrates (mud, sand, rock), the influence of physical forces (winds, waves, currents,...) on water quality (temp, salinity, clarity), and the succession of the phyto- and zooplankton during the semester. The project will be worked on during the lab along with a series of demonstrations (labs) designed to help visualize some of the complex processes seen in the field. The product will be designed, written and completed by the students with assistance from the faculty and staff at College of the Redwoods.

Field sampling will take place each week with trips to Hookton Slough to collect water quality data, note oceanographic observations and collect plankton samples. You will need a journal to record your observations, insights and ideas from each field trip, and to contribute to the final project. Your notebook will record the basic observations, winds, temperatures, floods, etc. that occur during the semester and be part of your final grade. This data set will be summarized and put together by you toward the end of the semester.

Grading is based on lab attendance, field trip participation, lab notebook and your contribution to the final poster project. In order to successfully complete the lab work you will need a notebook, calculator, ruler, and writing supplies with an optional set of colored pencils (I have some). You will need to bring appropriate clothing for protection from Sun, Wind, and Rain during the field trips to South Humboldt Bay Area.

The following is a list of parameters to be included as part of the final poster.

- 1) Topographic and Bathymetric Profiles of the coastal hills, bay and ocean
- 2) Environmental description of the bay, sand spit, sea cliffs, and coastal seafloor
- 3) Beach survey the South Spit of Humboldt Bay 2 separate times in several locations
- 4) A plot of the tides and rainfall runoff and the water clarity of the South Humboldt Bay
- 5) Time series of the temperature, salinity, Secci depth
- 6) Observations of sea state conditions and the marine weather
- 7) Collection and identification of plankton samples
- 8) Observation of abundance and change of migratory fish, mammals, birds.

The poster will be a compilation of the field data, observations, events, and collected during the semester. The final product is a group effort, however, the grading will be based on the contribution of each individual. There are several components need to be included and so there is ample opportunity to contribute to the final poster. Some of the primary components that will go into the poster are: Title, Figures, Graphs, Illustrations, Figure captions, Poster Layout, Data processing, Research, References, and Final Production.

Faculty Initiated Drop

If you miss more than 3 laboratory meetings over the course of the semester you will be dropped from this lab. If you have to miss a lab, please let me know a day before the lab.

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