OCEANOGRAPHIC METHODS & DATA ANALYSIS: PHYSICAL PROCESSES (11:628:364, 3 credits)

Instructors

Professor David Bushek

Professor Travis Miles

Prerequisites

Dynamics of Marine Ecosystems 11:628:320

Course Materials

All required reading will be available through the course website

Topics

Basics of computer programs in Marine Science (Python/Matlab/R/etc.)

Google Earth, Navigation and the Global Positioning System

Using and analyzing data from CTDs (Conductivity, Temperature, Depth instruments)

Using and analyzing data from ADCPs (Acoustic Doppler Current Profilers)

High-frequency radar, satellites, remote sensing

Basics of biological sampling of phytoplankton, nekton and benthos

Course Learning Goals and Assessment

The Learning Goals for the Marine Science Program are posted on our website at http://marine.rutgers.edu/main/academics/undergraduate/program-description. The learning goals for this course apply to Program Learning Goal 1 (master the basic biological, chemical, physical, and geological principles of marine science) and Goal 2 (analyze and interpret contemporary oceanographic datasets).

Students completing this course will be able to:

Goal A. Make use of software for entering, organizing, and analyzing oceanographic data

Instructional Activities: lectures

Assessment Method: performance on lab reports, class participation

Goal B. Demonstrate ability to use oceanographic instruments and equipment to collect field data

Instructional Activities: lectures, field trips

Assessment Method: performance on lab reports, class participation

Goal C. Design a research question centered on modern techniques for collecting and analyzing oceanographic data, evaluate the relevant literature, and communicate the results in a poster, oral report, and written term paper

Instructional Activities: guidance on using databases available through the Rutgers libraries, guidance on proper citation procedures

Assessment Method: performance on oral and poster presentations, performance on term paper

Grading

Lab reports 25%

Participation 25 %

Oral and poster presentations 25%

Final paper 25%