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%