INTRODUCTION TO OCEANOGRAPHY (11:628:120, 3 credits)

Instructors
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Prerequisites
   None

Course Materials
   Trujillo, A. P. and H. V. Thurman. Essentials of Oceanography, 11th edition, Pearson. Barnes and Noble bookstore has both the traditional, bound version (ISBN 9780321814050) and the loose leaf version (ISBN 9780321820860), which is considerably cheaper
   Animations, videos, other supplemental material available through course website

Topics
   Origins of Earth and the oceans
   Plate tectonics
   Ocean basins, sediments
   Properties of seawater
   Atmospheric circulation, weather
   Ocean circulation
   Waves and tides
   Phytoplankton
   Zooplankton and nekton
   The deep sea, hydrothermal vents
   Coral reefs
   Fisheries
   Physical and biological ocean resources
   Climate change and the ocean

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 5 (evaluate contemporary global issues and the ethics of how the ocean’s resources are used).
   Students completing this course will be able to:

   Goal A. Explain how the oceans are connected to and drive the Earth’s climate
   Instructional Activities: lectures; assigned readings
Assessment Method: performance on exams and quizzes

Goal B. Identify the relationships among the biological, physical, chemical and geological features of different regions of the world’s oceans
Instructional Activities: lectures and assigned readings
Assessment Methods: performance on exams and quizzes; in-class study questions in which students work in small groups on problem sets that require analysis of data and reinforce concepts presented in lectures

Goal C. Explain the theory of plate tectonics, its relationship to how oceans form and change over time, and its relationship to the distribution of tectonic activity on Earth
Instructional Activities: lectures; assigned readings
Assessment Methods: performance on exams and quizzes; in-class study questions in which students work in small groups on problem sets that require analysis of data and reinforce concepts presented in lectures

Goal D. Explain how waves, currents, and tides are created
Instructional Activities: lectures; assigned readings
Assessment Methods: performance on exams and quizzes; in-class study questions in which students work in small groups on problem sets that require analysis of data and reinforce concepts presented in lectures

Goal E. Classify the major groups of marine organisms and explain their roles in food webs
Instructional Activities: lectures; assigned readings
Assessment Methods: performance on exams and quizzes; in-class study questions in which students work in small groups on problem sets that require analysis of data and reinforce concepts presented in lectures

Goal F. Assess how humans use marine resources and evaluate human’s effects on the oceans
Instructional Activities: lectures; assigned readings
Assessment Methods: performance on exams and quizzes

Grading
Three exams 25% each
In-class problem sets 20%
Online quizzes 5%