

Department: Science
Course Name: Oceans

Course Description:

This course will provide students with an understanding of ocean properties and their effect on our climate, local ecosystems and human impact, culture, and economics, extreme weather events especially on the Atlantic seaboard, waves and currents, global change in oceans, and ocean biodiversity, including migrations and unique habitats. Field work is possible but not a given. Students should know basic chemistry concepts with respect to water properties, pH, and salinity. Prerequisites for this course are chemistry and biology. Exceptions will require science departmental approval. Any field trip requiring a boat will have an additional cost. These fees could be as much as \$100 and will be collected when we have a field trip that has additional costs.

Content:

Properties of water
Carbonate shells
Major weather events
Estuaries
Biogeochemical cycling
Fishing
Ocean migrations
Waves and Currents
Ocean Geography and Zonation
Climate modulation (especially coastal temperatures of air and water)
Global Climate Change
Human impacts
Ocean biodiversity

Skills:

Utilize a learning management system for accessing content, assignments, and assignment submissions.
Identify changes in oceans and support your discoveries with evidence
Collect data using some basic college field methods and some methods specific to marine biology
Graph or chart data
Utilize a variety of lab techniques
Identify variables, create methods, analyze and draw conclusions from experiments they design
Evaluate research for congruity, accuracy, validity, and applications
Organize information to create flow charts or other graphic representations, including spreadsheets
Create presentations using a variety of technological applications

Text and Materials:

No text for this class
Primary and secondary literature will be provided

Methods of Instruction:

Project based learning, synchronous and asynchronous in an interactive application
Class discussion with emphasis on integrating and analyzing data
Laboratory experiments-emphasis on inquiry based laboratory experiences
Data analysis with computer graphing and spreadsheets

Lecture with focus on developing critical thinking skills utilizing interactive applications
Demonstrations illustrating methods of experimentation
Computer simulations in spreadsheets
Collaboration face to face and with interactive applications
Field studies

Methods of Evaluation:

Laboratory reports
Critical thinking essays explaining ocean processes
Projects
Current events: literature reviews
Tests on paper or with online assessments
Quizzes on paper or with online assessments
Field reports

Field Trip Fee: ~\$100

