

Big Blue: Exploring the Physical, Geological, and Chemical Properties of the Ocean

Grades: 7th – 10th
Day of Week: Wednesday
Time of Class: 1:00 – 2:30 pm ET
Length of Class: 20 weeks
Semester: Fall & Winter
Tuition: \$400.00

High School Credit: 1 Lab Science

Class Dates:

Fall

Week 1: September 16

Week 2: September 23

No Classes: September 28 - October 9 (Yom Kippur and Sukkot)

Week 3: October 14

Week 4: October 21

Week 5: October 28

Week 6: November 4

Week 7: November 11

Week 8: November 18

No Classes: November 23 – Thanksgiving Week

Week 9: December 2

Week 10: December 9

Make Up Week: December 16

Winter

Week 1: January 13

Week 2: January 20

Week 3: January 27

Week 4: February 3

Week 5: February 10

Week 6: February 17

Week 7: February 24

Week 8: March 3

Week 9: March 10

Week 10: March 17

Make Up Week: March 24

Instructor's Name: Sarah Pope
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Description of Class:

Oceanography is a lab based class, with hands on guided inquiry activities in which students will study the physical, chemical, and geological aspects of the ocean. Topics include exploration and oceanographic instruments; the chemistry of sea water; ocean dynamics; ocean floor features and formation; waves and tides.

Class Approach:

This course is designed to give students a better understanding of the world ocean. Through hands on labs that can be easily done at home, to analyzing real world data students will take an interactive approach to online oceanography.

Goals:

Using inquiry based labs; student will explore and gain an understanding of ocean chemistry, dynamics, and geologic features. Experimental design, graphing techniques and science based math will be applied in the various lessons.

Textbook:

The teacher will provide reference material, note sheets, online simulations, labs, videos, & project instructions.

Additional Supplies/Resources Needed:

- Webcam
- Headset/with microphone
- Printer
- writing utensils and paper
- Notebook or binder
- Highlighters
- Scissors & glue
- Video recording capabilities (webcam or mobile device can be used)

Most of the items needed for labs are everyday items you may already have in your kitchen. Some materials include:

- Large Tupperware container
- Salt
- Ice
- Food coloring

Weekly Homework:

Expect at least 1 hour of homework per week, including readings, graphing, labs, and questions.

Homework Policy:

All homework is expected to be completed by the due date. Quizzes and graded online assignments are developed using homework questions.

Additional Policies:

Attendance and participation during class and discussions is expected of all students.

Evaluation:

Weekly quizzes and labs will be assigned.

Grading Scale:

Weekly assignments	25%
Labs	25%
Quizzes	25%
Projects	25%

Anticipated Weekly Course Schedule:

Week	Topic
Week 1	Introduction to Oceanography
Week 2	Origin of the world Ocean
Week 3	History of Ocean Exploration
Week 4	LAB: Buoyancy
Week 5	Properties of water & Hydrologic Cycle
Week 6	LAB: Water Olympics
Week 7	Salinity
Week 8	Ocean Stratification
Week 9	LAB: Thermocline
Week 10	Thermohaline Circulation
Week 11	Ocean Dynamics: Surface Currents & Gyres
Week 12	Wind, Waves, & Ekman Spiral
Week 13	LAB: Upwelling
Week 14	Tides: Causes and prediction
Week 15	Coastal Topography & Formation
Week 16	Ocean Floor Features
Week 17	Bathymetry & SONAR
Week 18	Sea Floor Spreading
Week 19	Future of Ocean Exploration: ROVs
Week 20	Student Presentations