

Montclair High School

Course Syllabus

Department: Science

Course: Environmental Science

Level: Academic, Honors by contract only

Credits: 5

Course Description:

The goal of Environmental Science is to offer students the opportunity to apply many different scientific principles, concepts, and methodologies to the study of the environment and its vast number of ecosystems and biomes. Students will study the interrelationships of the natural world, to identify and analyze environmental problems, both natural and man-made, and to evaluate the relative risk associated with these problems and to examine alternative solutions for resolving and preventing them. The course will draw knowledge from various disciplines including ecology, geology, oceanography, meteorology, chemistry and physics. In addition economics and decision-making skills will be applied. Students should have a firm grasp of working with the metric system, maps, charts, graphs, fractions, decimals, and percent. The student should follow all safety procedures at all times in the classroom.

Standards:

Next Generation Science Standards: ESS2-2/4/5/6, ESS3-1/2/3/4/5/6, LS4-2/3/4/5/6, LS2-1/2/6/7

Anchor Text(s):

| Text Title | Publisher/Author | Year/Edition | ISBN | Text Distribution |
|-----------------------|------------------|---------------------------------|--------------------|---|
| Environmental Science | HRW/Karen Arms | 2008 2 nd Edition | 978-0-03-0781-36-0 | Hard copy, PDF copy , & online text available |

Supplementary Materials:

Laboratory sheets, problem solving sheets, educational videos, internet activities, articles from journals, magazines, and/or newspapers

Units of Study:

Introduction to Environmental Science, Ecology, Populations, Water, Air and Land, Mineral and Energy Resources, Our Health and Our Future

Proficiencies:

By the end of this course, students will:

- Be able to demonstrate problem-solving, decision-making and inquiry skills through the use of the scientific method.
- Express physical relationships in terms of mathematical equations derived from collected data.
- Give examples from the past and present of the interrelationship and mutual impact of science technology and society.
- Identify and explain the factors that influence the quality of water needed to sustain life.

- Use scientific, economic, and other data sources to assess the environmental risks and benefits with human activity on earth.
- Understand the role of the scientific community in response to changing social and political conditions.
- Distinguish between renewable and non-renewable resources.
- Identify the major contributors to environmental problems.
- Explain the five major types of species interactions.
- Explain the concept of adaptation.
- Explain how soil is formed and define and describe the world's biomes.
- Compare and contrast freshwater and marine ecosystems and identify various point and non-point sources.
- Name the major causes of air and water pollution and identify measures that could reduce this pollution.
- Understand the pressure that population increase has on the environment.
- Identify land use patterns such as farming, urban and suburban land use patterns and discuss deforestation practices and the effects of mining.
- Discuss the goals of a sustainable future in relation to population, agriculture, clean air, water, politics and ethics.

Evaluation & Assessment:

Marking period grades will be determined by:

- | | |
|-----------------------|-----|
| 1. Tests | 40% |
| 2. Quizzes | 15% |
| 3. Lab Work/Project | 20% |
| 4. Classwork/Notebook | 15% |
| 5. Homework | 10% |

Final grade will be determined by:

- | | |
|--------------------------|------------|
| 1. Marking period grades | 22.5% each |
| 2. Cumulative Midterm | 5% |
| 3. Cumulative Final | 5% |

Prior to beginning any lab activities, all students must have submitted a Safety Contract which has been duly signed by both the student and their parent/guardian. This contract will be kept on file by the teacher for the duration of the course.