Plymouth Public Schools' Science and Technology/Engineering Program Advanced Placement Environmental Science Course Syllabus

STE0081 Environmental Science Advanced Placement
STEL081 AP Environmental Science Lab Advanced Placement

Full year course intended for students in grades 11 through 12 worth 5 credits and accompanying one-semester lab course worth additional 2.5 credits

Course Description

This laboratory course is designed for talented students to provide an opportunity equal in rigor to a one-semester, introductory college course in environmental science, through which students engage with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world. The course requires that students identify and analyze natural and human-made environmental problems, evaluate the relative risks associated with these problems, and examine alternative solutions for resolving or preventing them. Environmental Science is interdisciplinary, embracing topics from geology, biology, environmental studies, environmental science, chemistry, and geography. There are several unifying themes that cut across these topics as well. This course also emphasizes specific science practices outlined for AP Environmental Science by the College Board. Please note that students are required to take the Advanced Placement Test. In order to meet the curriculum requirements of the Advanced Placement program, this course will be scheduled for two blocks in one semester and a single block in the other semester. Students should consider this additional time factor when planning their course selections. The prerequisites include successful completion of Biology and Chemistry and departmental recommendation.

Instructional Objectives

Students will independently and collaboratively:

1. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to answer a question or solve a problem.
2. Draw evidence from literary or informational texts to support analysis, reflection, and research.
3. Produce clear and coherent writing in which the development, organization and style are appropriate to task, purpose and audience.
4. Use representations and models to communicate scientific phenomena and solve scientific problems.
5. Use mathematics appropriately.
6. Engage in scientific questioning to extend thinking or to guide investigations within the context of AP Environmental Science.
7. Plan and implement data collection strategies appropriate to a particular scientific question.
8. Perform data analysis and evaluation of evidence.
9. Work with scientific explanations and theories.

10. Connect and relate knowledge across various scales, concepts and representations in and across domains.
11. Demonstrate proficiency in environmental science concepts including, but not limited to the following: Earth systems and resources, the living world, population, land and water use, energy resources and consumption, pollution, and global change.

Themes and Topics

1. Science is a process. It is a method of learning more about the world and it constantly changes the way we understand the world.
2. Energy conversions underlie all ecological processes. Energy cannot be created; it must come from somewhere and as it flows through systems, at each step, more of it becomes unusable.
3. The Earth itself is one interconnected system. Its natural systems change over time and space, more specifically biogeochemical systems vary in ability to recover from disturbances.
4. Humans alter natural systems and have had an impact on the environment for millions of years. Technology and population growth have enabled humans to increase both the rate and scale of their impact on the environment.
5. Environmental problems have a cultural and social context and understanding the role of cultural, social and economic factors is vital to the development of solutions.
6. Human survival depends on developing practices that will achieve sustainable systems. A suitable combination of conservation and development is required. Management of common resources is essential.

Text and Instructional Materials

1. Friedland, A. and Relyea, R. *Environmental Science for AP*. 2nd ed. New York, NY: W. H. Freeman, 2015.

Cheating/Plagiarism

The excerpt from the Plymouth Public Schools' Student Handbook on plagiarism and copyright infringement states, "Existing copyright law will govern the use of material accessed through network. The user will not plagiarize works found on the Internet. Plagiarism is taking the ideas or writings of others and presenting them as if they were yours. All copyrighted material used must have the express written permission of the person or organization that owns the copyright. Any student who has cheated on any academic exercise will receive no credit for that exercise. Plagiarism is a form of cheating. A parent/guardian will be notified by the involved teacher in all instances of cheating. The investigation of the claim of cheating and plagiarism will involve the student, teacher, and administration."

Grading Policy and Assessment

Levels of proficiency on various tasks and assignments determine student grades. During each grading term, students' grades will be based upon the following:

30% Homework
70% Assessments

The final year average will be calculated as follows:

20% Term 1 Grade
20% Term 2 Grade
10% Midcourse Exam
20% Term 3 Grade
20% Term 4 Grade
10% Final Exam

Please note that a grade of pass or fail will be issued for the AP Environmental Science Lab Advanced Placement (STEL081). This will not be included in the student's grade point average. Student performance will be based on Science and Engineering Practices outlined in the Massachusetts' Science and Technology/Engineering Curriculum Framework and College Board.