

Center for Talent Development - Gifted LearningLinks - AP Environmental Science

Text: *Environment* 5th edition by Raven and Berg
<http://bcs.wiley.com/environment>
Cracking the AP Environmental Science Exam, Princeton Review, 2008

Course Description

Environmental science is interdisciplinary as it embraces a wide variety of topics from many areas of study. Students study the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world. They identify and analyze environmental problems, both natural and human-made, in an effort to evaluate the relative risks associated with these problems and to examine alternative solutions for resolving and/or preventing them. Lab activities in this class require a significant amount of fieldwork as students acquire the knowledge, skills and experiences of this curriculum. This course prepares students for the AP Environmental Science exam.

Course Goals and Objectives

The main goals of the AP Environmental Science course are to enable students to develop a conceptual framework for environmental science, an appreciation of science as an inquiry process, and an understanding of the importance of energy in ecological systems, earth as an interconnected system, the role of humans, the social and cultural context of environmental issues, and the value of sustainability.

At the completion of AP Environmental Science course,, the student will be able to organize, discuss, explain, analyze, interpret, and integrate topics related to the following themes:

1. Science as a process:
 - Science is a method of learning and knowing about the world.
 - Science constantly changes the way we understand the world.
2. Energy conversions underlying all ecological processes:
 - Energy cannot be created: it must come from somewhere!
 - Energy becomes more unusable at each step as it flows through systems.
3. The Earth is an interconnected system:
 - Natural systems change over time and space.
 - Biogeochemical systems vary in ability to recover from disturbances.
4. Humans alter natural systems:
 - Humans 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:
 - 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.

In addition, the laboratory program will enable students

1. to design and carry out experiments that answer questions about environmental relationships
2. to propose questions based on experimental results
3. to manipulate data acquired during experiments and make conclusions about experimental results
4. to decide how to display data
5. to construct data charts and graphs
6. to determine sources of experimental error
7. to suggest improvements for experimental procedures
8. to collaborate with other students to plan and carry out experiments
9. to communicate accurately and meaningfully about observations and conclusions
10. to write formal lab reports

Instructor Biography:

Mrs. Nuño currently teaches AP Biology, Chemistry, and Honors Chemistry in an independent school in western Massachusetts. She has a B.S. in environmental health from UCLA, an M. A. in biological science from UC Santa Barbara, a certificate in online education from UCLA, and extensive course work in science education. Prior to moving to the east coast, she taught AP Biology, chemistry, and conceptual physics in a private school in Los Angeles. She now lives on a tree farm in southern Vermont!

Contact Information:

Email: xxxxxxxxxx@gmail.com
 Cyber Office Hours (East Coast Time)
 Daily: 5:00—6:00 am
 Tuesday: 6:00—7:00 pm
 Wednesday: 7:00—8:00 pm
 Thursday: 8:00—9:00 pm

Course Overview

Week	Unit	Activities, Labs, and Tests	Chapter Readings
1—4	1. <i>Humans in the Environment</i> Introduction to Environmental Science Sustainability Environmental Laws, Economics, and Ethics	<i>Diagnostic Test</i> Labs: Ecological Footprint, Sustainability, Scientific Method, Leaf Measurement Unit 1 Problem Set Tutorial Lectures from http://www.hippocampus.org <i>Unit 1 Test</i>	1—2
5—9	2. <i>The Living World</i> Ecosystems and Energy Ecosystems & Living Organisms Ecosystems & the Physical Environment Major Ecosystems of the World Human Health Environmental Toxicology	Labs: Trophic Levels, Species Diversity, Community Ecology Unit 2 Problem Set Tutorial Lectures from http://www.hippocampus.org <i>Unit 2 Test</i>	3—7
End of First Quarter <i>Midterm progress reports sent if you are struggling (C or below) or if you are missing work.</i>			
10—13	3. <i>Populations</i> Population Change Problems of Overpopulation The Urban World	Labs: Predator-Prey, Lesson of the Kaibab, Natural Selection, Human Population Trends, and/or Population Ecology Unit 3 Problem Set Tutorial Lectures from http://www.hippocampus.org <i>Unit 3 Test</i>	8—10
14—18	4. <i>Energy Resources and Consumption</i> Fossil Fuels Nuclear Energy Renewable Energy Conservation	Labs: Energy Resource Comparison, Personal Energy Audit, and/or Nuclear Power Simulation Unit 4 Problem Set Tutorial Lectures from http://www.hippocampus.org <i>Unit 4 Test</i>	11-13
End of First Semester <i>Progress Reports sent to all students.</i>			

Week	Unit	Activities, Labs, and Tests	Chapter Readings
19—24	5. <i>Land and Water Use & Resources</i> Water: A Limited Resource Soil Resources Minerals: A Nonrenewable Resource Preserving Earth's Biodiversity Land Resources Food Resources	Labs: Cookie Mining, Soil Analysis, Water Loss, Soil Salinity, and/or Transpiration Unit 5 Problem Set Tutorial Lectures from http://www.hippocampus.org <i>Unit 5 Test</i>	14—19
25—30	6. <i>Pollution</i> Air Pollution Water Pollution The Pesticide Dilemma Solid and Hazardous Waste	Labs: Tire Recycling, Air Pollution, and/or Garbage Unit 6 Problem Set Tutorial Lectures from http://www.hippocampus.org <i>Unit 6 Test</i>	20, 22—24
End of Third Quarter <i>Midterm progress reports sent if you are struggling (C average or below) or if you are missing work.</i>			
31—33	7. <i>Global Change</i> Regional Atmospheric Change Global Atmospheric Change Tomorrow's World	Labs: Atmosphere, Fossil Fuels and CO ₂ , Specific Heat and Climate, Climatograms, and/or Microclimate Unit 7 Problem Set Tutorial Lectures from http://www.hippocampus.org <i>Unit 7 Test</i>	21, 25
34—36	8. <i>Review</i>	Student Review Presentations Review Problem Set <i>Final Exam</i>	
End of Second Semester and End of Course <i>Progress Reports sent to all students.</i>			

Grading Information

Activity	Description of Activity
Tests	<p>The AP Exam consists of both multiple choice questions and free response questions. Free response questions generally have several parts and require that you integrate information from various areas of biology.</p> <p>The unit tests will consist of multiple choice and free response questions from the chapters indicated in the Course Overview. <i>There will be 7 unit tests.</i></p> <p>Responses to the multiple-choice and free response questions will be submitted online in the Blackboard classroom.</p>
Problem Sets	There are 7 Problem Sets that are in multiple-choice format, similar to those on the Unit Tests.
Lab	Instructions for Hands-on and Virtual Lab activities will be available in the Blackboard classroom. Students should expect to spend 2—3 hours per week on lab activities! <i>Formal lab reports are required for all labs.</i>
Discussion	Discussing concepts and ideas is a very important part of learning any subject but it is particularly important in an online environment. Students should post questions and responses in the discussion board about the labs and chapter topics.
Tutorials	Interactive activities and online tutorials are used to supplement the reading assignments.
Final Exam	This exam will consist of 80 multiple choice questions and 4 free response questions. This format and questions will be similar to those found on the AP Biology exam.

Grading Scale				
A+ (99-100)	B+ (87-89)	C+ (77-79)	D+ (67-69)	F (Below 60)
A (93-98)	B (83-86)	C (73-76)	D (63-66)	
A- (90-92)	B- (80-82)	C- (70-72)	D- (60-62)	