Syllabus for Advanced Placement Environmental Science

Textbook: Friedland and Relyea, Environmental Science for AP, 2nd Edition. Andrew Friedland, Rick Relyea, and David Courand-Hauri. WH Freeman and Company/BFW. 2012.

Course Description:

The goal for the AP Environmental Science course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving and preventing them.

Environmental Science is interdisciplinary; it embraces a wide variety of topics from different areas of study. There are several unifying themes included in the study of environmental science. The following themes provide a foundation for the structure of AP Environmental Science:

- Science is a process
- Energy conversions underly all ecological processes
- The Earth itself is one interconnected system
- Humans alter natural systems
- Environmental problems have cultural and social context
- Human survival depends on developing practices that will achieve sustainable systems

Required Materials-Please bring the following to class every day:

- Textbook, 3-ring binder with paper, 1-Subject spiral notebook, tab dividers (enough for 12 sections), and sticky notes (NOT "Super Sticky" or crazy colors)
- Writing Utensils: mechanical pencils, erasers, pens, highlighters, and colored pencils
- Positive attitude: strong work ethic and love of learning preferred

How You Will be Graded:

- 50% Major Grades: Assessments, including Tests, FRQ's, and Projects
- 25% Minor Grades: Labs and Classwork
- 25% Beyond the Classroom: Student Choice Assignments, please refer to the "Student Choice Assignments" handout for explanation of the grade and list of available assignments

FRQ's: FRQ'S are "Free Response Questions" and will be given on every assessment. The first set of FRQ's will be graded by me (Mrs. Kindler) and I will explain and instruct you how to grade FRQ's using the rubric. All other FRQ's will be anonymously student-graded and a curve will be built into the grade for each question to account for potential error, which means that if you feel there is a discrepancy, the curve has already fixed it. One of the best methods to learn is to teach and evaluate; by grading others' responses, you will have practice understanding how the College Board will grade your responses and, in turn will leave you better prepared to answer the FRQ's on the AP Exam.

Labs: You will be required to participate in Labs that help you understand the content material presented in class. Labs will be counted in the "Minor Grades" category, which counts for 25% of your final quarter grade. They are considered "Minor Grades" because they are for practice with the material not for assessment of your mastery of the

material. **A minimum of 1 class period per week will be spent completing lab work. To make sure that we have adequate supplies a $10 Lab Fee is requested from every student.**

Academic Integrity: I take cheating/sharing/copying extremely seriously. Dishonesty of any kind will not be tolerated in this classroom. I expect you to complete your own work.

Extra Help: I want to work with you to make this year successful for you. In order to do that, you must be responsible for completing your work and asking for help when you do not understand a concept. I am available for tutoring on **Wednesdays** after school-just leave me a note on my office door asking to come to my classroom. This is also the time when you can complete **"Test Corrections"** for extra credit.

The AP Exam: The exam is 3 hours long and is divided equally in time between a multiple-choice section, which constitutes 60% of the final grade, consists of 100 multiple-choice questions that are designed to cover the breadth of students' knowledge and understanding of environmental science. Thought-provoking problems and questions based on fundamental ideas from environmental science are included along with questions based on the recall of basic facts and major concepts.

The free-response section emphasizes the application of principles in greater depth. In this section, students must organize answers to broad questions, thereby demonstrating reasoning and analytical skills, as well as the ability to synthesize material from several sources into cogent and coherent essays. Four free-response questions are included in this section, which constitutes 40% of the final grade: 1 data-set question, 1 document-based question, and 2 synthesis and evaluation questions.

The use of calculators is not allowed on either section of the exam.

Attendance: You are expected to attend class every day and be an active participant in our learning team. On the occasion that you are unable to attend class, I cannot repeat lectures, notes, and/or activities for you. Please check the **"Absent?"** crate for handouts that you missed or check with your classmates to catch up and get notes.

- Remember, it is YOUR responsibility to check for work assigned during an absence and complete it within the guidelines set by the Nassau County School District, which is 5 days. However, **assignments are due on the given due date even if you are absent on the due date-no exceptions!**
- If you are absent on a test day, you will need to make up the test on the day you return during **"Anchor Hour."** It is imperative that you make arrangements with me to make up a test.

Syllabus: Please note that this is a tentative syllabus, which means that some of the activities listed may be deleted or changed depending on the progress of the class. All of the chapters listed will be covered and assessed during the school year. It is your responsibility to read the chapters in your textbook prior to it being covered in class. Any information given in the textbook will be fair game for a test, even if it is not explicitly discussed in class.

1st Semester

Weeks	Chapter(s)	Topic	Activities
1	1 and 2	Introduction to Environmental Science; Systems and Interactions; Basic Chemistry (Inorganic, Organic, Biochemistry, and Nuclear Chemistry)	• Video-The Lorax and Analysis Questions • Acid/Base/Salt Microchemistry Lab • Half-Life Property of a Radioactive Element
4	3 and 5	Ecology and Ecosystems; Energy Flow, Biogeochemical Cycles; Evolution and Biodiversity; Niches and Adaptations	• Owl Pellets Dissection Lab • Biogeochemical Cycles Poster Project • Natural Selection Lab (peppered moth)
1-2	6	Community Ecology; Structure, Species Interactions, Succession and Sustainability; Population Ecology	• Predator/Prey Populations Lab • Carrying Capacity Lab
1	4	Climate, Weather, Biomes, and Aquatic Life Zones	• Biomes/Life Zone Research Project
3	7	Human Population Dynamics, Human Demographics	• Human Population and Age Structure Diagrams • Cemetery Lab/Survivorship Lab
2	12 and 13	Nonrenewable Energy Resources; Energy Efficiency; Alternative Energy Resources	• Hidden Energy Use • Energy Practice Problems • Alternative Energy Resources Research Project

2nd Semester

2	8	Earth Systems: Geology, Minerals, Soils, Soil Conservation, and Mining	• Soil Texture, Porosity, and Permeability, Nutrient Testing, Chemical and Physical weathering Lab • Reading River Sediments • Cookie Mining Lab • Exploring Physical Properties of Minerals
2	11 and 17	Food Resources: Human Nutritional Needs, Farming Methods, Alternatives to Industrial Farming Methods; Risk, Toxicology, Pesticides	• Toxicology Lab • LC_{50} Lab • Food Scavenger Hunt
3	10 and 18	Land Uses and Land Management Issues: Public and Private Lands, Urbanization, Forestry, Rangeland, and Terrestrial and Aquatic Biodiversity	• Endangered Species Research Report • Habitat: The Choice is Yours • Effects of Urban Sprawl City Planning • Impacts of Fire Lab • Movie-The Cove and Analysis Questions
1	15 and 19	Air and Air Pollution; Regional and Global Problems: Ozone Depletion, Acid Deposition, and Global Climate Change	• Acid Deposition Lab • Air Pollution Lab
2	9 and 14	Water Resources, Uses (Human Alteration of Availability, Irrigation, Agriculture, and Conservation), and Water Pollution	• Groundwater Pollution Lab • Deposition of Sediments Lab • Water Quality Testing for Marine and Fresh Water • Ocean Acidification Lab
3	16 and 20	Solid and Hazardous Wastes in the Environment: Economic, Politics, and Ethics	• Waste Water Treatment Lab • Design a Sustainable City Project