AP Environmental Science

Course Syllabus

2019-2020

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Office Hrs: **7:30-8:15am by appointment**

Personal Philosophy

Environmental Science is one of the most critical subjects to study. Our society is influenced by it every day. A persons' overall health is affected by the quality of the environment they live in, from the cleanliness of the air they are breathing, to the purity of the water available to drink, to the habitat they live in. Presently environmental issues are embodied in all aspects of our culture, from the political arena to everyday social settings. I will provide you with current issues, theories and data and how they relate to you, the student and society as a whole. My goal for you as my student is to make sure you have an understanding of the concepts covered in a first year university Environmental Science course and make connections between the concepts you are learning and relevance to your life and the lives of others.

Course Overview

The goal of 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/or preventing them. The following themes provide a foundation for the structure of the AP Environmental Science course.

1. Science is a process.
    - Science is a method of learning more about the world.
    - Science constantly changes the way we understand the world.
2. Energy conversions underlie all ecological processes.
    - Energy cannot be created; it must come from somewhere.
    - As energy flows through systems, at each step more of it becomes unusable.
3. The Earth itself is one 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.

Class Materials

- Three-ring binder is required
- Scientific calculator
- **Cracking the AP Environmental Science Exam, 2019 Edition: Practice Tests & Proven Techniques to Help You Score a 5 by The Princeton Review (can be found on Amazon for $12)**

Textbook: Exploring Environmental Science for AP. Miller & Spoolman, 2019. 978-1-3379803-8.

Student Assessment

You will be assessed daily with reading quizzes, pre/post lab quizzes, and lecture quizzes. There will be unit exams, AP style exams and laboratory exams. Students are evaluated on their level of performance in laboratory exercises, lab write ups, homework, attendance, and organization of lab book and binder.

Quarter grades are calculated using a point scale. I will be using the following breakdown when calculating your quarter grade.

- Test: most test will be worth 100 points and you can expect at least 3 each nine weeks.
- Quizzes: quiz points will vary between 20-50 points.
- Projects: projects will be a major grading category and can be from 50-100 points.
- Laboratory grades: lab grades will vary between 30-50 points.

Semester class grades are based on the traditional grading scale: 100%-90% = A, 89%-80% = B, 79%-70% = C, 69%-Below= F.

Semester grades are calculated according to the school's grading policy, 40% first quarter, 40% second quarter, 20% final exam.

Earning College/University Credit

- ***AP Exam*:** Students are expected to take the AP Exam Monday, May 11, 2020 at 12 p.m. This test is the driving force for the curriculum taught throughout the year. Early in the course we will visit the Career Center, where students will explore the credit they can receive at their university/college of choice for a score of 3, 4, or 5 on the AP Environmental Exam.

Assignment Due Dates

All assignments are due on the date communicated by the instructor. Unless otherwise indicated, no assignments may be sent to the instructor electronically. The student is responsible to print their assignment before class starts. ***Late Assignments are not accepted***. I will always give you several days and a weekend to complete assignments. Turn things in late is not a life skill. It will not help you succeed in college or career. If there are circumstances beyond your control let me know prior to the due date. This is on an individual case by case basis.

Methodologies

- **Chapter Assignments:** For each chapter, students will be required to read the textbook and answer the questions associated with that chapter.
- **Chapter Vocabulary:** Students will learn approximately 700 vocabulary words related to Environmental Science. Vocabulary is very important to fully understand science. Students are encouraged to make their own flash cards.
- **Quizzes:** There will be quizzes on a regular basis. The quizzes will focus on vocabulary, chapter readings, lectures and activities for the week. These will take approximately 10-15 minutes of class.
- **Unit Exams:** Each unit will be comprised of several chapters from the texts. Exams are a combination of multiple choice questions and extended response/essay. As this is a college level class, additional time is not provided on exams. You must finish in the time provided.
- **Labs / Activities:** There will be many activities for each unit, see the chapter assignments for an approximate listing of these assignments. Some activities will be relatively short, while others will last for many weeks. Each activity has different point values based on the length and complexity of the activity. Lab write-ups will be submitted by the group ***in lab format*** and will generally carry a higher point value
- **Current Events:** You will be required to keep up with current events. We will start Current Event Friday's. The Current Event must be related to environmental science, if possible, tie the current event to the current unit being studied. You may use newspapers, magazines, Public Radio, or the Internet.

Course Topics

This course covers the following topics:

- **Unit 1: The Living World: Ecosystems 6%–8% of exam score**
  You'll begin to explore a view of planet Earth as one system made up of regional ecosystems composed of interdependent environmental features, processes, and relationships between species.

- **Unit 2: The Living World: Biodiversity 6%–8% of exam score**
  You'll learn about the importance of biodiversity within ecosystems and the impact of outside factors on the evolution of organisms.

- **Unit 3: Populations 10%–15% of exam score**
  You'll examine how populations within ecosystems change over time, and the factors that affect population growth.

- **Unit 4: Earth Systems and Resources 10%–15% of exam score**
  You'll study the natural components that make up the environment, from geologic features to the atmosphere and climate.

- **Unit 5: Land and Water Use 10%–15% of exam score**
  You'll examine how humans use and consume natural resources, and the ways in which we disrupt ecosystems, both positively and negatively.

- **Unit 6: Energy Resources and Consumption 10%–15% of exam score**
  You'll learn about renewable and nonrenewable sources of energy, where they're used, and their impact on the environment.

- **Unit 7: Atmospheric Pollution 7%–10% of exam score**
  You'll learn more about air pollution, including how human actions can cause it, and you'll analyze legislation intended to regulate emissions and improve air quality.

- **Unit 8: Aquatic and Terrestrial Pollution 7%–10% of exam score**
  You'll examine the impact of pollution on ecosystems and learn how to determine its source.

- **Unit 9: Global Change 15%–20% of exam score**
  You'll come to understand the global impact of local and regional human activities and evaluate and propose solutions

APES Lab Safety Contract

APES is a hands-on laboratory class. However, science activities may have potential hazards. We will use some equipment and chemicals that may be dangerous if not handled properly. Safety in the science classroom is an important part of the scientific process. The rules listed below must be followed at all times. Additional safety instructions will be given for each activity. No science student will be allowed to participate in science activities until this contract has been signed by both the student and a parent or guardian.

1. Conduct yourself in a responsible manner at all times in the lab. Horseplay, practical jokes, and pranks will not be tolerated.
2. Follow all written and verbal instructions carefully. Ask your teacher if you do not understand the instructions.
3. Do not touch any equipment, supplies, or other materials in the lab until instructed to do so.
4. Only perform experiments approved by your teacher.
5. Be prepared for your work in the lab. Read all procedures thoroughly before beginning the lab.
6. Never eat, drink, chew gum, or taste anything in the science room.
7. Keep hands away from face, eyes, and mouth while using lab materials. Wash your hands with soap and water when you are finished with the lab.
8. Follow your teacher's instructions for disposal of waste materials.
9. Clean all work areas and equipment. If you finish early, help clean up common areas. Nobody leaves the lab until the entire lab space is clean and all materials are accounted for.
10. Never remove chemicals, equipment or other supplies from the lab unless instructed to do so.
11. Consider all chemicals used in the lab to be dangerous. Do not touch, smell, or taste any chemicals unless specifically instructed to do so.
12. Treat all preserved specimens and dissecting supplies with care and respect.
    a. Do not remove preserved specimens from the science room,
    b. Use scalpels, scissors, and other sharp objects only as directed.
    c. Never cut any material towards you- always cut away from your body.
    d. Report any cut or scratch to the teacher immediately.
13. Report any accident, injury, or hazardous condition to the teacher immediately.
14. Do not handle broken glassware with your bare hands.
15. Always carry a microscope with both hands. Hold the arm with one hand and the base with the other hand.
16. Dress properly- long hair must be tied back, no dangling jewelry, no loose or baggy clothing. Wear aprons and goggles when instructed to do so.
17. Learn where the safety equipment is and how to use it. Know where the exits are located and what to do in case of an emergency or fire drill.
18. Be aware of what is going on in your experiment at all times. Do not wander around the room, distract other students, or interfere with the experiments of other students. Stay on task!
19. Examine glassware before each use. Never use chipped or cracked glassware.
20. Do not open storage cabinets or enter the storage room without permission from the teacher.

Failure to comply with lab safety rules will result in removal from the lab. If you are removed from a lab you will complete an alternate assignment for credit.

I, _____, have read and understand each of the safety rules. I agree to follow them to ensure not only my own safety but also the safety of my classmates. I understand that if I do not follow all the rules and safety precautions, that I will be removed from the lab.

_____

Student Signature Date

Parents/ Guardians, please read through the list of safety rules. No student will be permitted to perform lab experiments unless this contract is signed by both the student and parent/guardian and is on file with the teacher. Your signature indicates that you have read and understand this contract.\

_____

Parent Signature Date