Advanced Placement Environmental Science 1 & 2

D. Barnett

2020-2021

ADVANCED PLACEMENT ENVIRONMENTAL SCIENCE is designed to be the equivalent of a one-semester, introductory college course in environmental science. Environmental science is a multidisciplinary field that includes elements of biology, chemistry, and geology, but stresses the analysis and laboratory skills necessary in each of these areas of scientific study. Major areas of study in environmental science include ecosystems, energy, air, land, populations, and water quality. Topics throughout the course are integrated using themes described by the College Board's Advanced Placement Environmental Science curriculum. Although most of the content is presented during class, students are expected to cover additional materials on their own.

TEXTBOOK

Wright, Richard T. *Environmental Science*, 10th ed. Upper Saddle River, NJ: Prentice Hall, 2007

TOPIC OUTLINE: Class topics are based on those outlined by the College Board. Detailed information about these topics and the AP examination can be found online at http://apcentral.collegeboard.com/apc/public/repository/ap-environmental-science-course-description.pdf.

I. Earth Systems and Resources (10-15%)

A. Earth Science (geologic time scale, plate tectonics, earthquakes, volcanism, seasons, latitude)
B. The Atmosphere (composition; structure; weather and climate; atmospheric circulation)
C. Global Water Resources and Use (freshwater/saltwater; agricultural, industrial, and domestic use; conservation)
D. Soil and Soil Dynamics (formation; composition; physical and chemical properties; main soil types; erosion; soil conservation)

II. The Living World (10-15%)

A. Ecosystem Structure (populations and communities; ecological niches;; keystone species; biomes)
B. Energy Flow (photosynthesis and cellular respiration; food webs and trophic levels; ecological pyramids)
C. Ecosystem Diversity(biodiversity; natural selection; evolution; ecosystem services)
D. Natural Ecosystem Change (climate shifts; species movement; ecological succession)
E. Natural Biogeochemical Cycles (carbon, nitrogen, phosphorus, sulfur, water, conservation of matter)

III. Population (10-15%)

A. Population Biology Concepts (population ecology; carrying capacity; reproductive strategies; survivorship)
B. Human Population (human population dynamics, population size, impacts of population growth)

IV. Land and Water Use (10-15%)

A. Agriculture (feeding a growing population, controlling pests)
B. Forestry (tree plantations; old growth forests; forest fires; forest management; national forests)
C. Rangelands (overgrazing; deforestation; desertification; rangeland management; federal rangelands)
D. Other Land Use (urban land development, transportation infrastructure, Public lands, mining, fishing)

V. Energy Resources and Consumption (10-15%)

A. Energy Concepts (energy forms; power; units; conversions; Laws of Thermodynamics)
B. Energy Consumption (Industrial Revolution; exponential growth; energy crisis, present global energy use)
C. Fossil Fuel Resources and Use(formation of coal, oil, and natural gas; world reserves and global demand)
D. Nuclear Energy (nuclear fission process; nuclear fuel; electricity production; nuclear reactor types)
E. Hydroelectric Power (dams; flood control; salmon; silting; other impacts)
F. Energy Conservation (energy efficiency; CAFE standards; hybrid electric vehicles; mass transit)
G. Renewable Energy (solar energy; solar electricity; hydrogen fuel cells; biomass; wind energy; geothermal)

VI. Pollution (25-30%)

A. Pollution Types (air, noise, water, solid waste)
B. Impacts on the Environment and Human Health (acute/chronic; hazardous chemicals, economic impacts)

VII. Global Change (10-15%)

A. Stratospheric Ozone (formation; UV radiation; ozone depletion; relevant laws and treaties)
B. Global Warming (greenhouse gases and greenhouse effect; impacts; relevant laws and treaties)
C. Loss of Biodiversity
D. Habitat loss; overuse; pollution; introduced species; endangered and extinct species

CLASS MATERIALS

- notebook

CLASSROOM POLICIES AND PRACTICES

1. Follow all Royal Oak HS guidelines regarding attendance and conduct.
2. Show respect for everyone and everything in the classroom.
3. Listen whenever anyone speaks. Disrespectful behavior will not be tolerated.
4. Come to class prepared, on time, and ready to work each day.
5. Work that you turn in should your own. Although you may work with a group on certain assignments, the work you submit should be unique.
6. No food or drink (other than water) is allowed in the classroom.
7. Inappropriate language or topics of conversation will not be tolerated.

ANTICIPATED WORKLOAD

Homework is regularly assigned. It is designed to provide background for lectures and labs, as well as practice on skills learned in class. Work completed outside of class generally takes the form of independent reading or review. (See Canvas, Calendar, and MiStar for detailed assignment information.

AP EXAM

This course is designed to prepare students for the Advanced Placement Environmental Science exam in the spring of 2021. Therefore, assessments used in this course will attempt to reflect the style and difficulty of the actual AP exam. Because of the challenging nature of the course, students may not always obtain high percentages on assessments. Diligence with lab work and projects should work to balance lower assessment grades.

EVALUATION

Marking period grades are based on total points earned in each of the categories listed below. Grades will be updated as often as possible. It is the student's responsibility to monitor grade details online and report any errors. Progress reports are always available upon request.

All assignments are to be turned in on time. Assignments turned in after the unit assessment will face a 20% grade reduction.

Grades are based on the following:	WEIGHT
SUMMATIVE ASSESSMENTS (tests, quizzes, labs, projects)	70%
FORMATIVE ASSESSMENTS	30%

Semester grades are calculated from the two marking period grades and a comprehensive final exam.

1st MP = 40 % 2nd MP = 40 % EXAM = 20 %

ACADEMIC HONESTY

Royal Oak Schools is committed to creating an environment of integrity where students understand academically honest students submit work that is solely their own and make ethical decisions considering their learning. The complete text of the Royal Oak High School Academic Honesty Policy is available here: https://drive.google.com/open?id=1PcgTQYPAyp9HP0oY7FzGohNWGxWj7EgY

INDIVIDUAL HELP: Students may always receive help before or after school, during conference hours, or by appointment.

CONTACT INFORMATION:

Phone: (248) 435-8500, ext. 1004 Email**: david.barnett@royaloakschools.org**

NOTES:

A Canvas site for AP Biology is available for students. The site serves as a clearinghouse for information related to the class, including assignments, presentations, and other resources

Please indicate that you've read and understand the expectations for this class using this form: https://forms.gle/BNrWq6VHmJ3RbFUCA.