

Bladensburg High School Syllabus for Environmental Science

Teacher: Dr. Gordon Gainer, email: gordon.gainer@pgcps.org, phone: 301-887-6700, ext 80318, school address: Room C5113, 4200-57th Ave, Bladensburg MD 20710, course website on Canvas.

Course Description and Objectives: This course is designed to provide students opportunities to apply science and engineering practices and crosscutting concepts of the Next Generation Science Standards (NGSS) to gain a greater understanding of the Scientific Big Ideas of Environmental Science. Students will be carrying out investigations, engaging in project based learning activities and participating in Meaningful Watershed Educational Experiences (MWEE) to deeply explore the systems and feedback loops that define our Earth's environment. Students will learn their role in these systems and participate in activities that will prepare them to become a potent voice of change on the environmental policy stage.

Course Prerequisites: Biogeochemical Systems or Chemistry. Biology

Course Materials: A pocketed folder (or a section in a 3-ring notebook devoted to only this course), lined paper, pens, pencils, erasers, and a PGCPs Chromebook. Maintain in a notebook (preferably online in Canvas) evidence notes to study and use during labs and tests.

Grading Policy: Independent Assignments: 25% This is also called "Homework."
Classwork: 35%
Assessments: 40%

We will have a STEM Fair (Science Fair) in the middle of the school year. A major part of the 1st and 2nd quarter grades will be for the Science Fair assignments. In addition, students will have many opportunities for earning extra credit, such as answering and asking relevant questions that show independent thinking. The student's attendance and grade records can be seen on the SchoolMAX Family Portal. To use this website, go to www.pgcps.org, and click on "SchoolMAX Family Portal." Next, click on "Video: How to register for Family Portal" near the bottom.

Students have one opportunity to improve assignment scores, under the following conditions:

1. The original assignment must have been turned in on time without cheating.
2. Students must request and receive reteaching for the assignment within 5 school days of receiving the grade. The reteaching and substitute assignment may be a report or a website exercise.
3. Within 10 school days of receiving the returned original graded work, the student completed and resubmitted the new assignment.
4. The higher grade will be the grade of record.
5. Makeup work cannot be submitted within 5 school days prior to the quarter end, to ensure that teachers have enough time to grade all outstanding work.
6. Unit tests, chapter tests, projects, and final reports are not reassessed, since their knowledge, skills, and progress are developed and assessed over a long period of time with many assignments.

Teachers shall assign a minimum grade of 50% to assignments or assessments for which the student completed the entire assignment and made a good faith effort.

Class Rules and Procedures. Some of these rules must be adapted when instruction is online.

1. Respect others in your words and actions.
2. Class time is only for class activities. Check our Canvas website for assignments.
3. Obey all school rules at [Student Rights and Responsibilities Handbook](#).
4. Come to class prepared and with the required course materials, specified above.

5. Follow the school dress code, including the school uniform, even when presenting oneself online.
6. Students will not use cell phones, earphones, or similar recreational electronics in the class, unless the teacher requires their use. These devices must be turned off or in silent mode and stored out of sight in a pack, bag, pocket, purse, locker, etc.; not on a desk or table.
7. Assigned seats will remain the same, unless the teacher changes them.
8. At the starting bell, be in your assigned seat. Read the Canvas lesson to see the objective, warm-up, assignments, and announcements. Quietly complete the warmup in the first five minutes of class.
9. If a student is tardy, he/she must sign the Tardy Log through a posted QR code when he enters the class. Students are not to be admitted to first period after 9:30 a.m. without a tardy pass from the Attendance Office or an administrator. Tardy passes will only be accepted from an administrator, the nurse, a counselor, a teacher, or a secretary, who will write the tardiness reason or excuse that is indicated on a note from a parent/guardian. Hand the pass to the teacher or put it on the teacher's desk. To make up work missed during tardiness, the excuse on the tardy pass must be valid.
10. If a student is absent during a class, then the next time he attends school, he must bring a valid excused absence note to the Attendance Office, who will give him a small yellow form with the reason and dates of the absence. He hands the yellow form to the teacher or puts it on the teacher's desk at the beginning of class. The teacher will sign and return the note to the student. During lunch or just after school, the student will take the note to the attendance office. During distance learning, the parent/guardian will email the excused absence note to the teacher. This procedure may soon be replaced with an electronic, paperless version.
11. After a second unexcused tardy/absence, the parents will be contacted. After a third unexcused tardy/absence, the student will be referred for guidance and administrative action.
12. One day will be given for each day of excused absence to make up missed assignments after returning to school. *Assignments may be made up only if the absence is excused.* Students should obtain their makeup work from our Canvas website. To complete work at home, students may read the textbook online. Missed assignments not made up receive a grade of zero.
13. Homework is due by 10 p.m. of the next class day. Homework more than one class day late will receive a grade of zero.
14. No hall passes will be given during the first 15 minutes or the last 15 minutes of class. Hall passes will only be given for valid excuses, such as a call from the office; not locker visits.
15. All physiological needs must be taken care of before class, so you must use the restroom before class (not during class), and no food or drinks are allowed in the class, except bottled water.
16. When the teacher raises his hand, all the students should raise their hands and be quiet.
17. When the end-of-class bell rings, remain in your seats, until the teacher says, "Dismissed." This is in case the teacher has last-minute instructions.
18. If there is a fire alarm/drill, students will quietly and quickly walk the prescribed route out of the building, meet the teacher at the *north far bleachers*, and remain with the teacher until the fire drill ends. After a fire alarm/drill, students must quickly and quietly go to the appropriate class. Students are graded for these lab safety procedures during fire alarms and drills.
19. During quizzes and tests, students must not talk, walk around, or use anything like a cell phone or earphone. If he does, his score is divided by two. If he does it again, his score is multiplied by zero. If a student cheats, as in copying or giving an answer, his assessment score is zero.

Course Outline of Environmental Science Performance Expectations/Standards

Unit 1: The World Around You

- Systems and System Models: Use models to simulate systems and interactions- including energy, matter, and information flows- within and between systems at different scales.
- Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.
- Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
- Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales
- Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.
- Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.
- Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

Content Specifics

- Introduction to the methods of Environmental Science
- Feedback Loops
- Earth Systems Interactions
- Taking Environmental Measurements
- Data Analysis
- Biomes and Biodiversity
- Natural Selection and Speciation
- Species interactions and Invasive Species

Unit 2: Feeding the Growth of the World

- Systems and System Models: Use models to simulate systems and interactions- including energy, matter, and information flows- within and between systems at different scales.
- Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
- Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.
- Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity
- Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

Content Specifics

- Climate
- Air pollution
- Water pollution
- Tree Growth
- Carbon sequestration in trees
- Mechanism of Greenhouse Gasses
- Taking Environmental Measurements
- Data Analysis
- Land use and Agriculture
- Soil Science

- Water as a resource

Unit 3: Understanding Scale and Interaction

- Systems and System Models: Use models to simulate systems and interactions- including energy, matter, and information flows- within and between systems at different scales. Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection
- Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.
- Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems
- Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth's systems.

Content Specifics

- Understanding Scale in Earth Systems
- Biodiversity Maintenance
- Ecosystem Health in the Chesapeake Bay
- Taking Environmental Measurements
- Data Analysis
- Ocean Ecology
- Ecological Interconnectivity
- Natural Resources
- Human Population Growth (needs and effects)
- Measurement of CO₂

Unit 4: Human Impacts on the Environment; A call to action

- Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.
- Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems
- Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth's systems

Content Specifics

- Electricity Generation
- Wastes and Toxins
- Cities and Urban Planning
- Taking Environmental Measurements
- Data Analysis
- Indigenous Peoples and Environmental Policy
- Community Environmental Activism
- Ecological Interconnectivity
- Natural Resources
- Human Population Growth (needs and effects)
- Measurement of CO₂
- Mechanism of Greenhouse Gasses
- Solving Climate Change and its Effects