

Honors Environmental Science  
Course Syllabus 2009-2010

Instructor: Amy Vandenbrul  
Phone: (916) 942-3282 x1169  
E-mail: [avandenbrul@ndsion.edu](mailto:avandenbrul@ndsion.edu)

**Classroom Expectations:**

- Follow all school rules at all times; these can be found in the student handbook.
- Pick up and throw away or recycle trash. Return all materials to their proper location.
- Respect one another in both word and action.
- Maintain an appropriate voice level at all times.
- Always “be green” in the classroom and be willing to assist in recycling duties.
  - ✓ Limit consumption of materials
  - ✓ No disposable water bottles
  - ✓ Recycle all that is recyclable
  - ✓ Empty the recycling bin if you see it is full
- Please seek help when needed. The instructor is available before and after school as well as during sophomore study hall. Please do not wait until the last minute. Assistance must be sought out before the day of the test!

**Text and Materials:**

- Textbook- *Environment: The Science Behind the Stories*(3<sup>rd</sup> Edition) by Withgott and Brennan
- Writing Utensils
- Paper
- Folder or 3-ring binder (your choice)  
Colored construction paper or scrapbook paper for portfolio pages

**Course Description:**

The study of environmental sciences is necessary to become more cognizant of the living world, the biotic and abiotic factors which affect your daily life, and the interrelationships you have with other organisms. Material covered in the class includes global interactions, ecosystems, energy and matter, land, water, atmosphere, and biodiversity. A variety of methods will be used to introduce material as everyone has a different learning style. Lecture, class discussions, labs, research (individual and group), reading, writing papers, presentations, drawing, coloring/labeling etc. will all be used throughout the year to aid your learning of the major ecological and biological concepts. Throughout the course, environmental stewardship will be the primary focus and each student will obtain the knowledge necessary to be a responsible citizen of the 21st century and build a sustainable world.

**Course Goals:**

Through Environmental Science, the students will

- ⌚ gain an understanding of environmental science and understand their connection with, and impact on, the world around them.

- ⌚ develop critical thinking skills by considering controversial environmental problems and complex environmental concepts.
- ⌚ clearly and confidently express their opinions through writing on tests, research papers and lab reports, and through formal presentations.
- ⌚ utilize technology in multimedia presentations, laboratory experiments and research.

### Course Objectives:

- ⌚ Describe the regions of the biosphere and explain how organisms interact within the biosphere.
- ⌚ Define and describe the various biomes of the world.
- ⌚ Describe an invasive species and discuss its impact on the environment.
- ⌚ Identify biotic and abiotic factors of an ecosystem and be able to describe their interaction.
- ⌚ Describe the main materials cycles of nitrogen, carbon, oxygen and phosphorous.
- ⌚ Identify and understand humankind's impact on atmosphere, soils and hydrologic cycles.
- ⌚ Describe factors of population growth and regulation.
- ⌚ Demonstrate an understanding of how human population growth and dynamics function in our biosphere.
- ⌚ Utilize the concepts of succession in real and modeled ecological systems.
- ⌚ Identify renewable and nonrenewable resources.
- ⌚ Explore and test alternative sources of energy.
- ⌚ Demonstrate an understanding of recycling principals and practices.
- ⌚ Demonstrate ability to record, graph and interpret experimental data.
- ⌚ Assess humankind's impact on terrestrial and aquatic ecosystems.
- ⌚ Demonstrate an understanding of the interrelationships of environment, economics, and politics in humankind's impact on the biosphere.

### Course Calendar:

A classroom calendar will map out the activities for a 2-3 week block of time. At the end of that time a written exam will be administered. Included on the calendar will be lecture and discussion topics, laboratory exercises, assignments and due dates. Some quizzes will be listed on the calendar and others will be unannounced. The course calendar will always be adjusted as unexpected events change the schedule.

### Notes:

Notes and/or outlines may be provided for you; however, you must learn to take notes when listening to lecture. This skill will be essential for your survival in college – the only way to improve is to practice. **Anything** discussed in class is considered testable material. Many of the PowerPoint or Google presentations that are viewed during class will be available on the environmental science website.

### Assignments:

For all reading assignments, it is essential to your learning that you read the entire assigned passage; analyzing all graphs, pictures, and diagrams. This allows you to be prepared for the next day's topic. Assignments are to be **turned in on time** unless *previous* arrangements have been made. No exceptions will be granted for major projects. All assignments are to be either typed or written in the best penmanship possible. Grammar and spelling mistakes are not acceptable and partial points will be deducted for errors. All answers should be written in complete sentences unless otherwise stated.

**Late Work:**

Work is considered late if it is not turned in at the beginning of the class period it is due. For each day late, 25% will be taken off the final score. If not handed in **within 4 days** of the due date, no credit will be given. Computer problems are not a valid excuse for not turning in an assignment on time. Do not procrastinate on homework and use the computer lab at Sion if necessary. Late work will not be accepted the day grades are to be turned in.

**Absenteeism:**

If you are absent on the day an assignment is due or on the day of an exam, you are expected to hand in the assignment/take the exam upon your immediate return. This is the policy in the student handbook. It is the students' responsibility to check the classroom calendar or website and ask the instructor for any missed work. If you are absent the day before an exam, you will be permitted one day to seek any clarification from the instructor that you may need. It is your responsibility to communicate with the instructor during the instructors' hours of availability (before or after school, or during sophomore study hall) and ask questions or catch up on missed material.

**Tests and Test Review:**

Honors Environmental Science Test will be approximately 40% multiple choice, true false, or matching questions, 40% essay, and 20% evaluating information and graph analysis. There will not be any in class formal review sessions for the Honors level in environmental science. It is your responsibility to keep up with the course materials and seek help when needed, not only the day before a test. If you need help before the test, let the instructor know at least two days prior to the test to set up an after school review session. No test review questions will be answered on the day of the test unless you come in **before school** (for morning classes) or **during sophomore study hall** (for afternoon classes). This is not because the instructor does not want to help, but it is logistically impossible to be able to answer all questions in a short 5 minute passing period, this often results in not everyone getting clarification and also may delay the start of the test. It is best to make sure that all testable material is clarified well before the day of the test. Test review materials (podcasts and/or worksheets or written materials) will be available on the course website at least one week prior to the test.

**Extra Credit:**

Students should keep up with assignments and focus on doing their best on assessments throughout the semester. Extra credit is not intended to replace a bad grade, but rather to encourage students to get involved in the community. Extra credit may also help a student who is just a few points away from receiving a higher grade. One extra credit opportunity will be allowed per quarter. Periodically there will be environmentally related seminars or speeches at various locations which will count for 5 points extra credit, these will be posted on the daily assignments website and may not be discussed in class. Periodically there will be environmentally related seminars or speeches at various locations which will count for 5 points extra credit. You may also volunteer at a community recycling center for a minimum of two hours to receive extra credit. All extra credit must be completed at least one week prior to grades being turned in. No last minute extra credit will be allowed. See the course website for more information regarding extra credit.

**Cheating:**

Cheating of any kind on any class work will result in a zero for that assignment and immediate notification of parents and school administration. Please read the policy in the student handbook. Homework is to be completed individually unless stated otherwise. Students' may ask each other for assistance, but the work should still be done by the individual student.

### **Plagiarism:**

Plagiarism of any kind is not tolerated and will result in an automatic zero on the assignment and a consultation with the teacher, the Academic Dean, and parents. Written papers and any other work that seems suspect will be checked online using turnitin.com or a related site and will be thoroughly examined to look for work that is not original and/or is not cited properly. Students must cite all sources used in any type of work including major papers and smaller assignments such as simply looking up a bit of information. Your information is useless unless it comes from a credible source, make sure you indicate the source to validate your information. Please use APA citations, these can be found in The College Writer which all students have as a mandatory English reference. It is assumed that each student understands what plagiarism is and how to avoid it. If you are not, please look at the following websites for assistance, or ask the instructor. Ignorance is not an excuse!

<http://www.plagiarism.org/>

<http://owl.english.purdue.edu/owl/resource/589/01/>

<http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml>

### **Grading:**

Grades will be calculated based on points accumulated during the quarter. Generally homework, laboratory reports, and other written assignments will constitute 60% of the final quarter grade and tests will constitute the remaining 40% of the quarter grade. At the end of each semester there will be a comprehensive final exam. This exam will constitute 20% of your final semester grade. Keep all assignments as a record of your grades. These works serve as proof of completion should a discrepancy occur.

### **Case Studies and Article Summaries:**

The purpose of this assignment is to demonstrate the relationship between the concepts you study in class and their real world applications. Students will read and summarize a series of case studies that contain a central theme. The summaries for the **article** are to be typed and will include the following:

1. Heading
2. Title (should reflect your theme)
3. Article summary (as many paragraphs as needed to completely summarize; typed in size 12, Times New Roman, 1 inch margins, double spaced)
  - Introduction – explains the topic (1 paragraph)
  - Main points – describe the major points of information (2-4 paragraphs)
  - Conclusion – closing thoughts to summarize information. (1 paragraph)
  - Reaction statement – personal thoughts regarding the content and ideas. Use specific examples from the article to help explain. (1-2 paragraphs)
  - Bibliography – according to standard format (examples below)

\*\*\*Do NOT “paraphrase” or copy any portion of the article; it is a SUMMARY. The summary is to be a minimum of one full page.

### **Major Research Projects:**

1. Design your own “green home”- in this project, students will design their own home constructed with environmentally friendly building materials. Students must include a model of their home and a paper describing their environmentally friendly aspects of the home.

2. Researching Alternative Fuels- students will work in teams to research several different alternative fuel sources and present their findings to a panel of their peers. A formal paper may accompany the group presentation.
3. Environmental Science Portfolio- each student will create their own portfolio of environmental science work that demonstrates their understanding of the material covered in class. Each student must select two original pieces of work to put in their portfolio and each piece must have a written reflection that accompanies it.
4. The Biome Project- each student will research one of the worlds' major biomes and create a factsheet that accompanies a PowerPoint or Google presentation and speech that will be presented in class at the end of the semester.
5. Change the World- each student will work to create a personalized environmental message and then get that message out to the world, the Sion community, or the Kansas City community. This is a differentiated project meaning you pick what type of project you will do. You may create a YouTube video, a website, a book, an essay, etc. More information will be given in class.

**Tentative Course Schedule:**

**August 19-August 31 Chapter 2 Environmental Ethics**

- Influences of culture and worldview on environmental decisions
- Environmental ethics
- Environmental Philosophers
- Conservation and Preservation
- History of environmental policy in the US (chapter 3 p. 57-58, 61-69)

**Test September 1**

**September 2-September 16 Chapters 1, 5, and 8 Environmental Footprints**

- Introduction to Environmental Science (chapter 1)
- Natural Resources (chapter 1)
- Population dynamics (chapter 5)
- Human Overpopulation (chapter 8)

**Test September 15**

**September 16- September 24 Chapters 5 and 6 Basics of Ecology**

- Biodiversity
- Extinction
- Levels of Ecological Organization
- Habitat, niche, and specialization
- Species interactions: competition, predation, parasitism, mutualism

**Test September 25**

**September 28- October 12 Chapters 6 and 7 Energy in Ecosystems**

- Trophic Levels

- Ecological succession
  - Invasive/Introduced species
  - Biomes
  - Biogeochemical cycles: phosphorous, nitrogen, carbon, water
- \*Test October 12 (last test on first quarter)**

**October 13- October 26 Chapter 15 Freshwater**

- Freshwater resources and water shortages
- Freshwater pollution
- Dams
- Groundwater
- Wastewater treatment

**Test October 27**

**October 28- November 8 Chapter 16 The Oceans**

- Marine and coastal ecosystems
- Marine pollution
- Algal Blooms and Dead Zones
- Overfishing

**Test November 9**

**November 10- November 30 Chapter 19 and 20 Energy Sources and Alternative Fuels**

- Sources of energy
- Electricity generation
- Alternative energy sources
  - Nuclear
  - hydro
  - wind
  - geothermal
  - biomass
  - ethanol
  - hydrogen

**Test December 1**

**December 2- December 9 Chapter 18 Global Climate Change**

- Global climate change
- Greenhouse gases
- Other factors that influence climate change
- Ice cores
- IPCC
- Possible effects of global warming

**NO TEST OVER GLOBAL WARMING, ALTERNATIVE ASSESSMENTS WILL BE MADE**