

Connecting Undergraduate Level Environmental Science Courses to *GREENR*

Relevant Courses



The Changing Atmosphere

- The atmosphere interacts with all other components of the environment: the oceans, the geosphere (solid earth), the biosphere (living plants and animals), and the cryosphere (glaciers and ice-caps). Courses focusing on the atmosphere look at how the greenhouse effect, stratospheric ozone depletion, the polar ozone holes, and urban smog all play a role in changing life on Earth.



Global Change

- Every day, millions of human and natural activities are altering the planet on which we live. In courses on Global Change students investigate the causes and potential impacts of these changes. Among the topics that students explore are: current and project global change, the role of individual citizens, and the likelihood of drastic global climate change.



Environmental Management

- These courses introduce students to the emerging management issues associated with global climate change and the environment. Environmental management courses are interdisciplinary by nature, they touch on aspects of business, engineering, and ethics. These courses teach students the skills they need to be stewards of the environment while still being aware of socioeconomic and cultural factors.



Planet in Peril - Water Issues

- Water was once considered one of our most abundant resources, now the allocation of fresh water is one of the planet's most contentious issues. People now see H₂O as not only being essential for life but also for economics, stability, and growth. Environmental Science students study water rights issues with an eye for efficiency. They look for ways to get the most production out of water and ways to minimize environmental disruption.

Major Topics

Planetary Energy Budget

- There is a delicate balance between radiation and atmosphere which must be maintained for life to flourish on Earth. Yet scientists are concerned that this balance, known as the planetary energy budget, is being disrupted. The depleting atmosphere and rising surface temperature are swining the energy budget into dangerous and uncharted territory.

Environmental Politics

- Environmental scientists, who are concerned with preservation, are increasingly using political avenues to achieve their goals. Being able to communicate the urgency, consequences, and impact of environmental change is now a requisite for these scientists. The ability to influence decision makers is a crucial role in stabilizing the planet.

Population Shifts

- Population is a sometimes hidden factor in climate change. Yet we are becoming increasingly aware of the fact that the Earth has a carrying capacity. And it is not only the number of people that makes a difference but also where and how they make a living. Designing population centers and supply chains for the next generation is essential to maximizing the planet's resources.

Three of the most common student assignments

✓ *ENVIROTHON*

- An Envirothon is a chance for students to show what they know by conducting hands-on assessments rather than paper and pencil recall based assessments. Envirothons can be organized at the school, state, or national level. During an Envirothon students are generally tested in five natural resource categories: i.e., soils and land use, aquatic ecology, forestry, wildlife, and current environmental issues. For each category there is a station and the students demonstrate their knowledge on a given topic through completing experiments, identifying samples, and answering questions.

✓ *LAB EXPERIMENTS*

- Another authentic assessment that students perform is a battery of lab experiments where concepts from readings and lectures are brought to life. The types of experiments required vary from course to course but some common ones include: Air Quality Lab: Students set up traps to capture particulate matter in the air. Students use microscopes to observe the different types of particulate matter, Soil Test Lab: Students obtain soil samples from their neighborhoods, and test the soils for pH, nitrates, and phosphates, and Water Pollution Lab: Students obtain a freshwater sample from a nearby source to test nitrate, phosphate, pH, dissolved oxygen, temperature, and bacteria levels of the water. For each experiment students are expected to complete a lab report detailing the process and results of their lab and how the results relate to class concepts and current events.

✓ *POLICY ANALYSIS PAPER*

- Students choose a specific environmental issue of their choice and write a brief analysis. The basis of the paper should come from a recent article in a major newspaper/magazine, such as the New York Times or the Wall Street Journal that discusses an environmental issue. The student paper should elaborate on the following four points: (i) what is the issue, (ii) why is it important, (iii) how economic tools can be applied to analyze the issue, including references to the existing academic literature that discusses the subject, and (iv) what lessons can we learn from the economics analysis (i.e. what are the policy recommendations or what are the new insights for the business world etc.). Papers are expected to be comprehensive and analytical; they should provide a thorough discussion of the economic causes and impacts of the environmental problem under consideration.



How a student would use GREENR to complete these assignments

Features

When students are studying environmental science they are learning about a discipline that touches almost every other. Environmental science students must be aware of current trends in business, new ideas in engineering and have an understanding of politics. *GREENR* makes it easy for students in environmental science courses by highlighting these connections and presenting them in a clear way so that it is easy to understand the big picture. *GREENR* provides the current understanding and perspective that textbooks lack. Students and instructors will find it to be an essential complement to any environmental science course.



GREENR
Global Reference on the Environment, Energy, and Natural Resources

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GALE
CENGAGE Learning

Prepare for an Envirothon

To excel at an Envirothon students need to prepare for the assessment in each of the five categories. *GREENR* can be a one-stop resource for students as they study each category. *GREENR* has the current issue test category covered with hundreds of environmentally focused periodicals from around the world that contain reports and analysis on breaking environmental news. Many of the other categories, including soil/land use, are covered from every angle with dedicated portal page that links students to a wealth of expert content.

Case studies, research, and periodicals for acing assessments

Envirothon competitions often are won, and lost, on how well students can apply their classroom knowledge to the real world. Why not use one of *GREENR*'s hundreds of case studies to gain experience in addressing climate change issues. Being up to date on the latest research is another crucial step in preparing. Research reports give students perspective on just how climate change is affecting the Earth at large, and *GREENR*'s periodical content helps to explain complex environmental issues in simple terms.

Connecting lab experiments to the real world

Lab experiments are designed to demonstrate global problems on an individual level; they help illuminate core concepts and issues for students. *GREENR* can add to this by providing global context to the issues and concepts being explored. After a student has done an experiment on air pollution, they use *GREENR* to find out causes, current measures to curb the problem, and the global impact the problem is having. Lab reports become less rote and more about providing the student with an understanding and curiosity into today's issues.

Resources for the policy analysis paper

When students have assignments that require them to take a position on an issue finding the latest research is essential to formulating a strong position. *GREENR* gives students a look at not only the latest scholarship but suggests relevant conference presentations, reports/overviews and libraries that specialize in controversial research topics. These resources are the perfect complement to *GREENR*'s in-depth reference content.

Multimedia content that covers both sides of issues

GREENR contains multimedia content from all over the world that addresses the social, political, and ethical issues associated with environmental topics. With reporting from the Associated Press, NBC News, and National Public Radio, students will get balanced coverage of issues. Each multimedia clip gives local insight into issues and highlights global impact.

