

SYLLABUS

COURSE # AND TITLE: BIOL 230, Environmental Conservation
OF CREDITS: 4 (3+2P)

CATALOG DESCRIPTION

A study of natural resources in a global context. Attention is given to public policies and programs which affect the long-range availability and utilization of these resources. This course is an introduction to several environmental issues that confront resources, technology, pollution and society.

Semester Offered: Fall and Spring

Prerequisites: Successful completion of ENGL 099 or Accuplacer score of 70+; RDNG 113 or Accuplacer score of 82+

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will....

<i>Learn</i>	<i>Students will actively and independently acquire, apply and adapt skills and knowledge to develop expertise and a broader understanding of the world as lifelong learners.</i>
<i>Think</i>	<i>Students will think analytically and creatively to explore ideas, make connections, draw conclusions, and solve problems.</i>
<i>Communicate</i>	<i>Students will exchange ideas and information with clarity and originality in multiple contexts.</i>
<i>Integrate</i>	<i>Students will demonstrate proficiency in the use of technologies in the broadest sense related to their field of study.</i>
<i>Act</i>	<i>Students will act purposefully, reflectively, and respectfully in diverse and complex environments.</i>

GENERAL LEARNING OBJECTIVES

Upon completion of the course, the student should understand the following content areas:

1. Nature of science and environmental science
2. Human population
3. Natural resources
4. Fossil fuels, nuclear energy and alternative energies
5. Pollution
6. Ecology and evolution
7. Data analysis

SPECIFIC LEARNING OUTCOMES

Upon successful completion of the course, the student will be able to:

- 1.1 Describe the steps of the scientific method and apply them to the design of an experiment.
- 1.2 Define sustainable development and describe why it is important.

- 1.3 Describe the roots of the environmental crisis.
 - 1.4 Explain the equation $\text{Impact} = \text{Population Size} \times \text{Affluence} \times \text{Technology}$.
 - 1.5 Explain the Tragedy of the Commons.
 - 1.6 Be able to relate the topics we have covered to the resources \rightarrow human systems \rightarrow waste continuum.
 - 1.7 Assess how individual actions can affect the global environment.
- 2.1 Describe human population growth historically; currently; and future projections.
 - 2.2 List several impacts continued growth of the human population has on natural systems.
- 3.1 Describe problems with modern agriculture, and delineate sustainable solutions to these problems.
 - 3.2 Describe how genetically modified organisms are produced, and describe advantages and disadvantages of their use.
 - 3.3 Predict the impacts of continued growth of the human population on resource use.
- 4.1 List the fossil fuels and describe issues associated with their production and use.
 - 4.2 Diagram nuclear fission.
 - 4.3 Compare and contrast the forms of renewable energy: solar, wind, hydroelectric, hydrogen fuel cells, and geothermal.
- 5.1 Define toxic, hazardous, mutagen, teratogen and carcinogen.
 - 5.2 Describe the health and environmental effects of common household chemicals.
 - 5.3 List the criteria air pollutants, their sources, and health effects.
 - 5.4 Explain ozone depletion, global warming and acid precipitation.
 - 5.5 Describe sources and types of chemicals that cause water pollution.
 - 5.6 Describe sustainable solutions to air and water pollution.
 - 5.7 List the major chemical insecticides.
 - 5.8 Describe the components of Integrated Pest Management.
- 6.1 Describe evolution by natural selection.
 - 6.2 Sketch a food web.
 - 6.3 Sketch the carbon, nitrogen and hydrological cycles.
 - 6.4 Give examples of human impacts on these cycles, such as burning forests and dams.
 - 6.5 Define and give examples of ecosystem services.
- 7.1 Use critical thinking skills to evaluate environmental issues.
 - 7.2 Use a local or regional environmental issue as an example, evaluate the people with vested interests, their positions on the issue, their evidence, and propose a solution.
 - 7.3 Analyze tabular or graphical data and make predictions based on the analysis.
 - 7.4 Critically assess information from all sides of an environmental issue; choose a side; and defend the choice.

Syllabus developed by Callie A. Vanderbilt Date: 3 May, 2005

Syllabus reviewed by _____ Date: _____

A current syllabus must be on file in the dean's office for every course being taught during a given semester.