



ENVS 115 - Introduction to Environmental Science Course Outline

Approval Date: 03/11/2021

Effective Date: 08/13/2021

SECTION A

Unique ID Number CCC000624319

Discipline(s) Earth Science
Geography

Division Science and Engineering

Subject Area Environmental Science

Subject Code ENVS

Course Number 115

Course Title Introduction to Environmental Science

TOP Code/SAM Code 0301.00 - Environmental Science / E - Non-Occupational

Rationale for adding this course to the curriculum Course modification to align with C-ID. Changes include: course title, TOP Code, catalog description, SLOs, Objectives, Content, method of evaluation update, and textbook update.

Units 3

Cross List N/A

Typical Course Weeks 18

Total Instructional Hours

Contact Hours

Lecture 54.00

Lab 0.00

Activity 0.00

Work Experience 0.00

Outside of Class Hours 108.00

Total Contact Hours 54

Total Student Hours 162

Open Entry/Open Exit No

Maximum Enrollment 26

Grading Option Letter Grade or P/NP

Distance Education Hybrid
Mode of Instruction

SECTION B

General Education Information:

SECTION C

Course Description

Repeatability May be repeated 0 times

Catalog Description Introduction to environmental issues from a scientific perspective and the role of science in finding sustainable solutions. Focus is on understanding the physical, chemical, and biological processes of the Earth System and the interaction between humans and these processes. Topics include ecological principles, biodiversity, human population growth, climate change, management of renewable and non-renewable energy, water, land, soil, mineral resources, and waste management.

Schedule Description

SECTION D

Condition on Enrollment

1a. Prerequisite(s): *None*

1b. Corequisite(s): *None*

1c. Recommended: *None*

1d. Limitation on Enrollment: *None*

SECTION E

Course Outline Information

1. Student Learning Outcomes:

- A. Identify and describe major global, regional, and local environmental issues.
- B. Analyze the scientific basis of major environmental issues and identify and evaluate potential solutions.
- C. Recognize the relationships between human actions and environmental issues, and examine the impacts of human population growth and the environment.

2. Course Objectives: Upon completion of this course, the student will be able to:

- A. Evaluate and understand the scientific method and terminology.
- B. Debate and discuss major global, regional, and local environmental issues from a science-based perspective.
- C. Distinguish between science and pseudoscience.
- D. Use population and community dynamics to examine specific environmental issues and the sustainability of solutions.
- E. Analyze the scientific basis of environmental issues and apply the knowledge of biological, chemical, and physical processes of the Earth to identify and evaluate potential solutions.
- F. Evaluate conflicting arguments on environmental issues by applying critical thinking skills and scientific methodologies.
- G. Research, evaluate, and cite information from publications and personal communications.
- H. Create and interpret scientific tables, graphs, and figures.

- I. Identify social, economic, and cultural considerations related to environmental issues and analyze their effects on solving environmental problems.
- J. Analyze natural resource issues and evaluate strategies for ethical conservation and sustainability of those resources.
- K.

3. Course Content

- 1. Introduction to Environmental Science and Sustainability
 - A. Scientific methodologies
 - B. The role of science in solving environmental issues
 - C. Natural resources and ecosystem services
 - D. Environmental sustainability

- 2. Environmental Systems and Ecology
 - A. Energy flow and matter cycling through ecosystems
 - B. Biogeochemical cycles
 - C. Populations: evolution, population ecology, human demographics
 - D. Communities: species interactions, niche, succession, biodiversity

- 3. Water
 - A. Water as a resource
 - B. Ground and surface water pollution
 - C. Social, economic, and cultural impacts

- 4. Soil
 - A. Soil composition and formation
 - B. Nutrients
 - C. Soil degradation
 - D. Impacts on agriculture and food supply

- 5. Air
 - A. Air as a resource
 - B. Air pollution
 - C. Social, economic, and cultural impacts

- 6. Minerals and Mining Practices
 - A. Physical and chemical composition and processes of Earth
 - B. Mineral formation and source locations
 - C. Mineral extraction and the ethical impact of the land and workers
 - D. Land reclamation
 - E. Sustainable use of mineral resources

- 7. Energy
 - A. Conservation and efficiency
 - B. Fossil fuels
 - C. Nuclear
 - D. Renewable
 - E. Energy strategies
 - F. Social, economic, and cultural impacts

8. Forests and Protected Lands
 - A. Forests as a resource
 - B. Deforestation
 - C. Management practices
 - D. Land Management Agencies and Protected Lands

9. Waste Management
 - A. Solid waste
 - B. Hazardous waste
 - C. Reduction, reuse, recycling
 - D. Legislation and policy
 - E. Social, economic, and cultural impacts

10. Economics and Policy
 - A. Economics and the environment
 - B. U.S. environmental law and policy: historical and current
 - C. International environmental law and policy: historical and current
 - D. Legislation, Acts, and Agreements

4. Methods of Instruction:

Lecture:

5. Methods of Evaluation: Describe the general types of evaluations for this course and provide at least two, specific examples.

Typical classroom assessment techniques

Exams/Tests -- Exams: Exams may consist of questions relating environmental processes, environmental issues, and human survival. Examples: 1) Explain how human population, affluence, and technology affect the environment. 2) Describe the environmental and social impacts of mining.

Quizzes -- Quizzes: Quizzes covering current lecture topics may be given throughout the course. Examples: 1) What are ecosystem services? 2) How does evolution generate and shape biodiversity?

Research Projects -- Report/project Examples: 1) Environmental Sustainability in practice. Research a company and identify their sustainable practices and environmental footprint. 2) Case Study. Research and examine an actual environmental problem or issue and explain the impact and/or problem and what solutions are being incorporated.

Field Trips -- Field Trip Examples: 1) Class field trip on campus to observe sustainable practices. 2) Self-guided field trip to a protected land, as directed by a field guide provided by the instructor.

Home Work -- Homework: Homework covering current lecture topics may be given throughout the course. Examples: 1) Summarize a current event article and discuss its relevance to the topics covered in class. 2) Complete worksheets related to chapter topic.

Additional assessment information:

Journal/Notebook - Students may keep an organized journal/notebook of their observations, analysis, and reflections on current environmental issues and topics. The journal/notebook will be evaluated by the instructor throughout the course.

Letter Grade or P/NP

6. Assignments: State the general types of assignments for this course under the following categories and provide at least two specific examples for each section.

- A. Reading Assignments

Reading assigned chapters from the textbook.

Reading professional publications, internet research, and class handouts provided by the instructor.

Examples: 1) Reading assigned topics from the textbook such as: "Environmental Effects of Using Mineral Resources". 2) Reading excerpts from professional publications, such as Journal of Environmental Sciences.

B. Writing Assignments

Each assignment will have individual or collaborative research problems. Examples: 1) Compare and contrast two current environmental science articles with opposing views. 2) Analyze the causes and impacts of soil erosion and land degradation, and discuss solutions.

C. Other Assignments

D.

7. Required Materials

A. EXAMPLES of typical college-level textbooks (for degree-applicable courses) or other print materials.

Book #1:

Author: Withgott, J.H. and Laposata, M.

Title: Essential Environment: The Science Behind the Stories

Publisher: Pearson

Date of Publication: 2019

Edition: 6th

B. Other required materials/supplies.