ESEC A100: INTRODUCTION TO ENVIRONMENTAL SCIENCE

Item	Value
Curriculum Committee Approval Date	11/17/2021
Top Code	030100 - Environmental Science
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)
Associate Arts Local General Education (GE)	• OC Physical/Biological Sci - AA (OB)
Associate Science Local General Education (GE)	• OCC Physical/Biological Sci-AS (OSB)
California General Education Transfer Curriculum (Cal-GETC)	• Cal-GETC 5B Biological Sciences (5B)
Intersegmental General Education Transfer Curriculum (IGETC)	• IGETC 5B Biological Sciences (5B)
California State University General Education Breadth (CSU GE-Breadth)	• CSU B2 Life Science (B2)

Course Description

The physical and biological components of the environment, their interrelationships, and the human population influence on these components. Physical, biological, and political means of reversing environmental deterioration will be considered as well as conservation and management of natural resources. Suitable as a general education elective for the non-science major and for students in Environmental Science or other natural sciences. Field trip may be required. Enrollment Limitation: ESEC A100H; students who complete ESEC A100 may not enroll in or receive credit for ESEC A100H. Transfer Credit: CSU; UC. C-ID: ENVS 100.**C-ID:** ENVS 100.

Course Level Student Learning Outcome(s)

1. Describe major biological, chemical, and physical components and processes that occur within various ecosystems
2. Explain the negative impacts of human activities on Earth's ecosystems and discuss potential solutions towards living more sustainably.

Course Objectives

- 1. Identify and understand major environmental problems and discuss implications for their remediation
- 2. Explain the scientific method and its role in understanding environmental issues
- 3. Understand the process of evolution and factors leading to speciation
- 4. Identify and describe Earths biomes and the characteristics of each
- 5. Describe factors of population growth
- 6. Understand the ramifications of human population growth on our environment
- 7. Identify types and sources of pollution and describe the environmental hazards they pose
- 8. Evaluate the benefits and costs of different forms of energy production
- 9. Describe urbanization and sustainable developments
- 10. Discuss various environmental laws used to protect biodiversity, clean air, and clean water.

Lecture Content

Mans place in the biosphere. Historical perspectives an overview. Concepts of Ecology Biological Communities Species Interactions Biological Diversity Evolution Biomes and Natural Systems Restoration Ecology Population Ecology Population Biology Human Populations Resources Food production Energy production Conventional energy Sustainable energy Environmental Health and Toxicology Pathogens Toxins and toxicants Resource Management Geology, mineralogy, and earth resources Water use and management Human impacts on natural systems Water pollution Air pollution Biodiversity of species and habitat Environment and Society Economics Politics Ethics

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- DE Online Lecture (02X)

Instructional Techniques

Lecture, in-class discussion, examinations, research-based assignments, assigned reading, and field trip

Reading Assignments

Textbook and related articles. (3 hours per week of reading and re-reading to prepare for examinations and complete assignments)

Writing Assignments

Research-based assignment and note-taking. (2 hours per week to summarize answers for various assignments such as journal assignments, textbook reviews, and note-taking from textbook reading or rewriting notes from lecture)

Out-of-class Assignments

Research-based assignments. (1.75 hours per week to research the topics for assignments and finding current news related to topics discussed in class)

Demonstration of Critical Thinking

Examinations and research-based assignment will demonstrate the ability to assess ecological principles and processes.

Required Writing, Problem Solving, Skills Demonstration

Examinations, a research-based assignment will demonstrate the ability to solve various ecological problems using different approaches.

Eligible Disciplines

Biological sciences: Masters degree in any biological science OR bachelors degree in any biological science AND masters degree in biochemistry, biophysics, or marine science OR the equivalent. Masters degree required. Ecology: Masters degree in ecology or environmental studies OR the equivalent OR see interdisciplinary studies. Masters degree required.

Textbooks Resources

1. Required Cunningham, W. and Cunningham, M.. Environmental Science: A Global Concern, 15th ed. McGraw Hill, 2021 Rationale: The 13th edition is the latest for this text. 2. Required Withgott, J. and Laposata, M.. Environment: The Science Behind the Stories, 6th ed. Prentice Hall, 2017 3. Required Molles, M. and Borrell, B. . Environment: Science, Issues, Solutions, 1st ed. New York: Macmillan Learning, 2016