



El Camino College
 COURSE OUTLINE OF RECORD – Official

Course Acronym:	GEOL
Course Number:	7
Descriptive Title:	Environmental Science I
Division:	Natural Sciences
Department:	Geology
Course Disciplines:	Earth Science
Catalog Description:	This course is a multidisciplinary introduction to environmental and natural resource issues, with an emphasis on how they can be understood in terms of physics, chemistry, and biology. This course examines human population growth through history, resources, pollution, and sustainability, and relates them to how humans use and affect the hydrosphere, atmosphere, lithosphere, and biosphere.
Prerequisite:	
Co-requisite:	
Recommended Preparation:	Eligibility for English 1A
Enrollment Limitation:	
Hours Lecture (per week):	3
Hours Laboratory (per week):	0
Outside Study Hours:	6
Total Course Hours:	54
Course Units:	3
Grading Method:	Letter Grade only
Credit Status:	Credit, degree applicable
Transfer CSU:	Yes
Effective Date:	fall 2019
Transfer UC:	Yes
Effective Date:	fall 2019
General Education: ECC	Area 1 - Natural Sciences
Term:	
Other:	
CSU GE:	Area B1 - Physical Universe and its Life Forms: Physical Science
Term:	fall 2019
Other:	

	IGETC: Area 5A - Physical Science
	Term: fall 2019
	Other:
Student Learning Outcomes:	<p>SLO #1</p> <p>Students can identify the salient features of the basic concepts of environmental science. (This includes the ability to recall the definitions of the specialized vocabulary of environmental science.)</p> <p>SLO #2</p> <p>Students recognize and articulate how their environment affects their lives and how their lives affect their environment.</p> <p>SLO #3</p> <p>Students can identify the key elements of the scientific method (hypotheses, test, observations, conclusions) in popular accounts of scientific research in magazines, newspapers, etc.</p>
Course Objectives:	<ol style="list-style-type: none"> 1. Define and discuss basic scientific concepts as they relate to environmental systems. 2. Explain the physical and biological processes which govern the environment. 3. Identify the relationships between the biosphere and its physical environment. 4. Compare and contrast the organization of organisms between populations and describe community changes through ecological succession. 5. Describe the natural selection process and its influence on evolution and speciation. 6. Relate human population dynamics to environmental sustainability and degradation. 7. Describe available water, soil, mineral, and food resources to analyze issues of ethics and personal responsibility relating to the environment. 8. Compare resource use between Industrial and pre-industrial countries and discuss conservation and management strategies. 9. Explain global warming, acid deposition, loss of ozone layer, and identify causes of each. 10. Identify pollution sources and their impact on resources and the environment.
Major Topics:	<p>I. Introduction (3 hours, lecture)</p> <ol style="list-style-type: none"> A. The interdisciplinary nature of environmental sciences B. History of environmental sciences C. Environmental challenges <p>II. Environmental Systems (6 hours, lecture)</p> <ol style="list-style-type: none"> A. Energy B. Chemistry C. Biochemical Cycles <p>III. Evolution, Species Interactions, and Biological Communities (4.5 hours, lecture)</p>

- A. Diversity
- B. Species interactions
- C. Population growth.
- D. Communities

IV. Human Populations (3 hours, lecture)

- A. Growth
- B. Factors

V. Biomes and Diversity (4.5 hours, lecture)

- A. Terrestrial, marine, and freshwater ecosystems
- B. Benefits, threats, and protection

VI. Environmental Conservation (6 hours, lecture)

- A. Forests
- B. Grasslands
- C. Parks and nature preserves

VII. Food, Soil, and Agriculture (4.5 hours, lecture)

- A. Global trends in food production
- B. Soil as a resource
- C. Soil management and degradation
- D. Sustainable farming

VIII. Geology and Earth Resources (6 hours, lecture)

- A. Processes
- B. Rocks and minerals
- C. Geologic resources and conservation
- D. Hazards

IX. Climate (6 hours, lecture)

- A. Atmosphere
- B. Weather and climate
- C. Fossil fuel
- D. Climate change

X. Air Pollution (4.5 hours, lecture)

- A. Sources
- B. Effects
- C. Management

XI. Water Resources and Pollution (6 hours, lecture)

- A. Compartments
- B. Availability and shortages

	C. Pollution in quality D. Management and conservation
Total Lecture Hours:	54
Total Laboratory Hours:	0
Total Hours:	54
Primary Method of Evaluation:	1) Substantial writing assignments
Typical Assignment Using Primary Method of Evaluation:	How do liquid pollutants enter the water table? How do we remove them? Answer in several paragraphs and include diagrams.
Critical Thinking Assignment 1:	Explain one positive feedback loop (vicious cycle) that occurs as the earth warms up. In other words, explain why the warming earth causes events that result in even more warming. The answer should be at least three paragraphs long and include one diagram.
Critical Thinking Assignment 2:	Compare and contrast ozone with atmospheric nitrogen/sulfur compounds in the Los Angeles Basin. As part of your answer, describe how each type of pollution
Other Evaluation Methods:	Essay Exams, Homework Problems, Matching Items, Multiple Choice, Objective Exam, Presentation, Quizzes, Reading Reports, Term or Other Papers, True/False, Written Homework
Instructional Methods:	Demonstration, Discussion, Group Activities, Lecture, Multimedia presentations
If other:	Internet Presentation/Resources
Work Outside of Class:	Answer questions, Required reading, Study, Written work (such as essay/composition/report/analysis/research)
If Other:	
Up-To-Date Representative Texts:	Withgott and Laposata. Environment: The Science Behind the Stories. 7th edition. Pearson, 2020.
Alternative Texts:	
Required Supplementary Readings:	News articles pertaining to current environmental issues.
Other Required Materials:	
Requisite:	
Category:	
Requisite course(s): List both prerequisites and corequisites in this box.	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	

Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	Eligibility for English 1A
Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable	<p>Students in this course are required to use critical thinking skills to read college-level textbooks. The skills developed will increase their ability to complete these assignments and will greatly enhance their chances for success in this course.</p> <p>Select and employ reading strategies to interpret the content of a college-level textbook, with special focus on constructing a thesis statement and providing valid support.</p>
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Joseph Holliday
Date:	02/14/2016
Original Board Approval Date:	12/18/2017
Last Reviewed and/or Revised by:	Thomas Noyes
Date:	09/15/2023
Last Board Approval Date:	11/20/2023
Effective Term:	FALL 2024