

G 022: INTRODUCTION TO ENVIRONMENTAL SCIENCES

Originator

Carl Farmer

Justification / Rationale

Adding missing C-ID. See T.A.

Effective Term

Fall 2023

Credit Status

Credit - Degree Applicable

Subject

G - Geology

Course Number

022

Full Course Title

Introduction to Environmental Sciences

Short Title

INTRO TO ENV SCIENCE

Discipline**Disciplines List**

Earth Science

Modality

Face-to-Face

Catalog Description

This course covers the physical, biological and chemical systems that constitute the Earth's environment. Topics include geological processes, hydrology, climatology and weather, air and water pollution, population biology, ecosystems, and biodiversity. This course will include analyses of how human behavior and institutions affect the environment. C-ID: ENVS 100

Schedule Description

This course covers the physical, biological and chemical systems that constitute the Earth's environment and how they are impacted by human behavior. Advisory: MATH 054 & ENG 061 IGETC: 5A

Lecture Units

3

Lecture Semester Hours

54

Lab Units

0

In-class Hours

54

Out-of-class Hours

108

Total Course Units

3

Total Semester Hours

162

Prerequisite Course(s)

Advisory: MATH 054 & ENG 061

Required Text and Other Instructional Materials**Resource Type**

Book

Author

Cunningham, W.P., M. Cunningham

Title

Principles of Environmental Sciences

Edition

7th

City

New York

Publisher

McGraw Hill

Year

2012

College Level

Yes

Flesch-Kincaid Level

12.5

ISBN #

0073532517

Class Size Maximum

60

Entrance Skills

Explain the research strategies and skills necessary and applicable to content area studies.

Requisite Course Objectives

ENG 061-Demonstrate the ability to use research skills including library resources such as books, periodicals, electronic databases and online resources such as the internet.

Entrance Skills

Demonstrate an awareness of the various textbook formats and writing styles.

Requisite Course Objectives

ENG 061-Recognize features of style such as purpose, audience and tone integrate these elements into academic and professional writing.

Entrance Skills

Effectively use source material to serve as examples and explanations to develop focused and relevant topics.

Requisite Course Objectives

ENG 061-Demonstrate the ability to use research skills including library resources such as books, periodicals, electronic databases and online resources such as the internet.

Entrance Skills

Understand the concepts of variables and how variables can be used to represent unknown quantities.

Requisite Course Objectives

MATH 054-Understand the concepts of variables and how variables can be used to represent an unknown quantity or a range of quantities.

Entrance Skills

Use variables to create algebraic expressions that model an application problem.

Requisite Course Objectives

MATH 054-Use variables to create algebraic expressions that model quantities in an application problem.

Entrance Skills

Apply the commutative, associative, distributive, identity, and inverse properties to simplify algebraic expressions - perform arithmetic operations with algebraic expressions using the order of operations.

Requisite Course Objectives

MATH 054-Apply the commutative, associative, distributive, identity, and inverse properties to simplify algebraic expressions involving polynomial, rational and radical expressions - perform arithmetic operations with algebraic expressions using the order of operations.

Entrance Skills

Apply the commutative, associative, distributive, identity, and inverse properties to simplify algebraic expressions - perform arithmetic operations with algebraic expressions using the order of operations.

Requisite Course Objectives

MATH 054-Use the properties of integer exponents to simplify algebraic expressions, including expressions involving scientific notation.

Entrance Skills

Use variables with the algebraic method to create algebraic equations or inequalities that model an application problem.

Requisite Course Objectives

MATH 054-Use variables to create algebraic expressions that model quantities in an application problem.

Entrance Skills

Understand square roots and solve square root equations.

Requisite Course Objectives

MATH 054-Interpret square roots and solve square root equations.

Entrance Skills

Understand the meaning of the slope of a line and find an equation for a line using general forms including point-slope and slope intercept.

Requisite Course Objectives

MATH 054-Convert between the geometric (Cartesian) and algebraic representations of a linear relation in two variables. Make use of point-slope and slope intercept forms.

Entrance Skills

Understand and use basic formulas from geometry including perimeter, area, and volume.

Requisite Course Objectives

MATH 054-Use basic formulas from geometry to find perimeter, area and volume of basic figures.

Entrance Skills

Apply units and unit conversion appropriately to solve application word problems that involve their use.

Requisite Course Objectives

MATH 054-Use dimensional analysis appropriately in applications.

Course Content

1. Scientific Method
2. Matter and energy, chemistry basics, nutrient cycles
3. Climate, ecosystems and biodiversity
4. Geologic processes and hazards
5. Rocks, minerals and soils
6. Climate change and air pollution
7. Animal population dynamics and natural selection
8. Energy resources and use
9. Economic development related to resource use
10. Food and Agriculture and forestry
11. Water resources and pollution
12. Human population dynamics
13. Environmental policy
14. Sustainable development

Course Objectives

Objectives	
Objective 1	Describe the nature of chemical reactions and bond formation and how these are governed by universal principles (e.g., the laws of thermodynamics) and applied to life on Earth.
Objective 2	Identify our major living resources, including animal and plant resources and how humans utilize and distribute them (such as agriculture).
Objective 3	Demonstrate an understanding of the relationship between biotic and abiotic factors and how they shape plant and animal communities.
Objective 4	Describe the major forces that affect life on Earth, their interrelationships, evolution, and how humans affect that life and attempt to manage their impacts.
Objective 5	Illustrate the theory of global tectonics and explain how plate boundaries are related to geologic hazards such as earthquakes, volcanoes, and tsunamis.
Objective 6	List non-fuel mineral resources, describe their uses, and discuss how and where they form.
Objective 7	Describe the origin and global distribution of nonrenewable energy resources, and summarize the advantages and drawbacks of each.
Objective 8	Identify and describe various types of water pollution and discuss technological solutions to fresh water shortages, their advantages and drawbacks.
Objective 9	Justify the scientific method and assess strengths and weaknesses of different scientific approaches.
Objective 10	Identify and distinguish the factors that contribute to air pollution and global warming, including anthropogenic emissions, chemical reactions, and atmospheric physics.
Objective 11	Identify current and alternative energy technologies, their advantages, costs, and impacts on the environment.
Objective 12	Identify and distinguish the factors that affect human population growth and describe the patterns of change over time and across regions of the world.
Objective 13	Describe the types of policies that can effectively regulate how we use environmental resources in different settings.
Objective 14	Identify and describe various types of water pollution and discuss technological solutions to fresh water shortages, their advantages and drawbacks.

Student Learning Outcomes

Upon satisfactory completion of this course, students will be able to:

Outcome 1	Assess local and global environmental processes and how they are impacted by humans.
Outcome 2	Explain and apply scientific laws and methods for investigating environmental phenomena and understanding human-environment interactions.
Outcome 3	Justify the scientific method and assess strengths and weaknesses of different scientific approaches.
Outcome 4	Construct college level writing and critical thinking analysis of current environmental issues in all course work.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Discussion	xx
Participation	xx
Lecture	xx

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Tests/Quizzes/Examinations	xx	In Class Only
Presentations/student demonstration observations	xx	In Class Only
Mid-term and final evaluations	xx	In Class Only

Assignments
Other In-class Assignments

1. Notetaking
2. Participation in Discussion
3. Take midterm and final exams

Other Out-of-class Assignments

1. Read text and materials provided by instructor
2. Prepare answers to study questions
3. Complete project or presentation

Grade Methods

Letter Grade Only

Comparable Transfer Course Information
University System

CSU

Campus

Humboldt State University

Course Number

ENVS 110

Course Title

Intro to Environmental Science

Catalog Year

2012

University System

UC

Campus

UC Davis

Course Number

ESP 1

Course Title

Environmental Analysis

Catalog Year

2012

COD GE

C1 - Natural Sciences

CSU GE

B1 - Physical Science

IGETC GE

5A - Physical Science

MIS Course Data**CIP Code**

40.0601 - Geology/Earth Science, General.

TOP Code

191400 - Geology

SAM Code

E - Non-Occupational

Basic Skills Status

Not Basic Skills

Prior College Level

Not applicable

Cooperative Work Experience

Not a Coop Course

Course Classification Status

Credit Course

Approved Special Class

Not special class

Noncredit Category

Not Applicable, Credit Course

Program Status

Program Applicable

Transfer Status

Transferable to both UC and CSU

C-ID

ENVS 100

Allow Audit

Yes

Repeatability

No

Materials Fee

No

Additional Fees?

No

Approvals**Course Control Number**

CCC000551577

Programs referencing this courseEnvironmental Science AS-T (<http://catalog.collegeofthedesert.eduundefined/?key=216>)Liberal Arts: Math and Science AA Degree (<http://catalog.collegeofthedesert.eduundefined/?key=29>)