

CATALOG INFORMATION

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Dept & Nbr: EAS 200 Title: ENVIRONMENTAL SCIENCE

Full Title: Environmental Science

Units	Course Hours	Per Week	Nbr of Weeks	Course Hours	Total
Max: 3.0	Lecture	3.0	17	Lecture	51.0
Min: 3.0	Lab	0.0		Lab	0.0
	Contact DHR	0.0		Contact DHR	0.0
	Contact Total	3.0		Contact Total	51.0
	Non-contact DHR	0.0		Non-contact DHR	0.0

Title 5 Category: 01 AA Degree Applic  
Grading: GC Credit course for grade or CR/NC  
Repeatability: 00 No repeatability allowed or defined  
Also listed as:

CATALOG DESCRIPTION:

Environmental Science is a field that brings aspects of biology, physics and chemistry together with geology and geography to understand the earth and its interrelated systems. The main emphasis of the course is a focus on sustainable use of Earth's resources and the reduction of solid waste and air and water pollution. The focus on both physical and biological principles is necessary to illustrate the interdisciplinary nature of dealing with the solutions to the complex environmental problems.

PREREQUISITES:

COREQUISITES:

RECOMMENDED PREPARATION:

ENG 80 or qualification for ENG 200 through the assessment process.

LIMITS ON ENROLLMENT:

SCHEDULE OF CLASSES INFORMATION:

Recommended: ENG 80 or qualification for ENG 200 through the assessment process.

Concern for the environment is in the news and on people's minds constantly. This course includes a survey of critical topics from a diverse collection of fields necessary for understanding the complex physical systems in the environment. From sustainable use of Earth's resources, to addressing global issues of overpopulation and climate change, this course is important for anyone planning to live on planet Earth. (Grade or CR/NC)

Transfer Credit: CSU; UC.

## ARTICULATION and CERTIFICATE INFORMATION

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ASSOCIATE DEGREE:                   Effective: FALL     2004   Inactive:  
 Area:                                A     NATURAL SCIENCES

CSU GE:                               Effective: SPRING 2007   Inactive:  
 Transfer area:                    B1   PHYSICAL UNIVERSE  
                                       B2   LIFE SCIENCE

IGETC:                               Effective: FALL     2005   Inactive:  
 Transfer area:                    5A   PHYSICAL SCIENCES

CSU TRANSFER: TRANSFERABLE   Effective: FALL     2005   Inactive:

UC TRANSFER: TRANSFERABLE   Effective: FALL     2005   Inactive:

CAN:

CERTIFICATE APPLICABLE:    C     CERTIFICATE APPLICABLE COURSE

## APPROVAL AND DATES

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Version 02           Submitted by: STEVE CARDIMONA                   Date: 09/14/2005  
                     Department approved: Catherine Indermill                   Date: 09/26/2005  
                     Curriculum approved: 02/20/2004                   Version approved: 09/23/2005  
                     Prerequisites approved: 02/20/2004                   Last reviewed: 09/23/2005  
 Term effective: FALL   2006   Last taught: SUMMER 2008   Inactive:

## COURSE CONTENT

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## OUTCOME AND OBJECTIVES:

1. Analyze conservation laws for matter and energy and associate with environmental issues.
2. Differentiate between different atoms, molecules and compounds, and evaluate their environmental significance.
3. Describe the relationship between matter cycling and Earth resources.
4. Distinguish between the different factors involved in evolutionary change and the related abiotic factors.
5. Evaluate large-scale geologic processes and their relationship to resources.
6. Identify various modes of species interaction and interpret the resulting population effects.
7. Compare and contrast city development strategies and the associated environmental impact.
8. Identify specific environmental issues and associate appropriate physical and biological processes.
9. Develop a model for pollution reduction based on input controls versus those defined by output controls.
10. Differentiate between various alternative energy resources.
11. Formulate reasonable ways to introduce environmentally-sustainable activities into every-day living.
12. Apply various scientific principles to characterize possible solutions to specific environmental problems.

## TOPICS AND SCOPE:

1. Physical Science: Basic concepts of geology, chemistry and physics
  - a. matter (atoms, molecules, compounds) and energy conservation laws
  - b. geologic resources (metallic, non-metallic, energy and soil resources)
  - c. characterization of natural hazards
  - d. groundwater resources
  - e. alternatives to fossil fuels and renewable energy resources
  - f. materials revolution
2. Biological Science: Basics of Ecology and biodiversity
  - a. evolutionary process and change in biodiversity
  - b. ecosystem dynamics
  - c. food chain/web
  - d. types of species and species interaction
  - e. populations and carrying capacity
  - f. human population: changing human societies, growth in numbers, megacities
3. Biological and Physical Science Interaction: Cycling of matter and environmental impact
  - a. carbon-cycle, water-cycle, and other matter cycling
  - b. physics and chemistry of biotic and abiotic factors in the environment
  - c. ozone layer losses and ultraviolet energy
  - d. global climate change and the carbon cycle
  - e. atmospheric pollution
  - f. water pollution
  - g. solid wastes

## ASSIGNMENTS:

## READING ASSIGNMENTS:

Appropriate reading assignments will be given from college level text(s). A variety of media may be used to supplement textbook readings, such as:

1. Current news articles from local or regional papers.
2. Reports, news articles or other documents from internet sources.
3. Documents by organizations such as the World Watch Institute.

## WRITING ASSIGNMENTS:

Appropriate writing assignments will be given which allow students to demonstrate their understanding of key concepts, present critical review of reading materials, and describe the application of course topics to the analysis of specific problems. Assignments will include:

1. Term paper on topic of interest to student but focused on clarifying environmental related processes.
2. Short essays involving written critiques and comparisons of environmental concepts and terminology.
3. Summaries and comparisons of environmental reports in the news.

Additional writing exercises may be assigned such as:

1. Analytical semester project that requires the application of graphic and descriptive analysis to environmental problems.
2. Reviews of news and/or research reports from entities such as the World Health Organization and the EPA.
3. Essay examination.

## OUTSIDE ASSIGNMENTS:

Out of class assignments are required. These assignments will allow students to take a more in-depth look at course topics and will include:

1. Reading and writing assignments as specified in the course syllabus.
2. Term paper on topic of interest to student but focused on clarifying Earth processes related to the environment.
3. Summaries of research-oriented questions addressing class topics.

Additional assignments may be included in the course, such as:

1. Assigned/recommended attendance at guest speaker lectures.
2. Analytical semester projects that require the application of graphic and descriptive analysis to environmental problems.
3. Viewing of assigned/recommended media materials.
4. Library, electronic, and other research on a variety of environmental subjects.
5. Reviews of news reports or research reports from entities such as the World Health Organization and the EPA.

## METHOD OF INSTRUCTION:

Methods of instruction will include:

1. Lecture and visual aids
2. Quiz and examination review performed in class
3. Homework and extended projects
4. Collaborative in-class problem solving exercises

Additional instruction may include:

1. In class discussion
2. Guest speakers
3. Optional materials available for review in the Learning Center and/or library

## METHODS OF EVALUATION:

A student's grade shall be determined based on demonstrated proficiency in the subject matter and the ability to demonstrate that proficiency, at least in part, by means of essays and problem-solving exercises including 1) In-class objective examinations that test for knowledge and applications of specific environmental concepts. 2) Out-of-class writing assignments that test the knowledge and application of Earth systems principles to specific environmental phenomenon. 3) Summaries of problem-solving exercises. 4) Research papers.

Proficiency in the subject matter may be measured through supplementary assignments/activities such as: 1) Take home essay assignments and/or examinations. 2) Analytical semester projects. 3) Participation in group projects. 4) Class participation including oral presentations on a variety of environmental subjects.

## BASIS FOR GRADING:

The assignment of a grade is based on the level of achievement of the outcomes and objectives of the course outline and is reflected in quantifiable terms in the course syllabus.

## REPRESENTATIVE TEXTBOOKS:

1. Environment, 4th Edition, Raven and Berg, Wiley, 2004, ISBN:0-471-44452-9.
2. Environmental Science, 10th Edition, Miller, Thomson/Brooks Cole, 2004, ISBN: 0-534-42411-2.

## REASON FOR REVISION

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Course outline modified to more clearly define physical science, biological science, and integrated content for General Education: CSU Area B1 - Physical Science, and IGETC Area 5A, Physical Science & 5B, Biological Science.

## RESOURCES REQUIRED

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## MISCELLANEOUS

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Advisory generate desc:	N	NO
Area department:	NRS	NATURAL RESOURCES
Audit flag:	N	NOT AUDITABLE
Basic skills:	X	NOT BASIC SKILLS
Classification:	A	Liberal Arts and Sciences
Cost level:	01	
Disciplines:		NATURAL RESOURCES
Division:	02	MERIDITH RANDALL
Faculty service areas:		NATURAL RESOURCES
Fee:	\$0.00	
In-service:	X	NOT IN-SERVICE
Level below transfer:	X	NOT APPLICABLE
Matric-requiring:	X	Exempt from assessment
Maximum class size:	0	
Maximum wait list:	0	
Method of instruction:	02	LECTURE
	72	DELAYED INTERACTION
Non-credit category:	X	NOT APPLICABLE, CREDIT COURSE
Open entry/exit:	N	Not open entry/exit
Pacs activity:	0115	NATURAL RESOURCES MGMT
Pacs program project:	0000	
Preq/coreq generate desc:	N	NO
Preq/coreq provisional:	N	NO
Preq/coreq reg check:	N	NO PREREQUISITE RULES EXIST
Repeat group id:		
Requires instructor sig:	N	INSTRUCTOR'S SIGNATURE NOT REQUIRED
SAM classification:	D	Possibly occupational
Selected/special topic:	N	NOT A SELECTED TOPIC COURSE
Special class:	X	NOT A SPECIAL COURSE
TOP code:	0115.00	NATURAL RESOURCES
Workload:	0.0000	