

Course Outline of Record

1. Course Code: NR-001
2. a. Long Course Title: Conservation Of Natural Resources
 b. Short Course Title: CONSV NATRL RESRS
3. a. Catalog Course Description:
 This environmental science course encompasses a study of general ecological principles including: biological energy relationships, biogeochemical cycles, population dynamics, limiting factors, biotic communities, principles of ecosystem sustainability, ecosystem change, and biodiversity. Environmental issues are examined from an ecological perspective and include such topics as: water availability and quality, fossil fuels and renewable energy resources, air pollution, global atmospheric issues, hazardous materials, and human population growth. Emphases are placed on the effects of environmental problems upon all living organisms, and the role of human beings in reducing their impact on this planet. Suggested for Biological Sciences General Education Requirements
 b. Class Schedule Course Description:
 This environmental science course examines the impacts of humans on this planet. Topics covered include ecology, water, pollution, atmospheric change, energy and population.
 c. Semester Cycle (if applicable): N/A
 d. Name of Approved Program(s):
 • NATURAL RESOURCES AS Degree and Transfer Preparation
4. Total Units: 3.00 Total Semester Hrs: 54.00
 Lecture Units: 3 Semester Lecture Hrs: 54.00
 Lab Units: 0 Semester Lab Hrs: 0
 Class Size Maximum: 36 Allow Audit: No
 Repeatability No Repeats Allowed
 Justification 0
5. Prerequisite or Corequisite Courses or Advisories:
Course with requisite(s) and/or advisory is required to complete Content Review Matrix (CCForm1-A)
 Advisory: ENG 061
 Advisory: NR 001L Concurrent enrollment
6. Textbooks, Required Reading or Software: (List in APA or MLA format.)
 a. Withgott, J., Laposata, M. (2018). *Essential Environment: The Science Behind The Stories* (6th/e). New York Pearson Publishing.
 College Level: Yes
 Flesch-Kincaid reading level: 12
7. Entrance Skills: *Before entering the course students must be able:*
 a. Identify and compose a paragraph as a discrete unit of thought organized by a single topic.
 • ENG 061 - Use theses to organize paragraphs into coherent analyses.
 • ENG 061 - Recognize features of style such as purpose, audience and tone integrate these elements into academic and professional writing.
 b. Read, comprehend, and summarize 8th grade level readings and identify main ideas and supporting details.
 • ENG 061 - Demonstrate the ability to read and respond in writing beyond the literal interpretation of the text.
 c. Recognize and explain patterns of idea development in short readings and academic writing.
 • ENG 061 - Demonstrate the ability to think critically and express ideas using various patterns of development.
 • ENG 061 - Demonstrate the ability to read and respond in writing beyond the literal interpretation of the text.
8. Course Content and Scope:

Lecture:

1. Ecology
 1. Basic terms
 2. Ecosystem structure, balance and principles of ecosystem sustainability
 3. Biological energy relationships, including food chains and food webs
 4. Biomass (ecological) pyramids
 5. Biogeochemical (elemental) cycles - Nitrogen and Carbon
 6. Biomes and life zones
 7. Population dynamics - growth, J and S curves, fluctuation, carrying capacity
 8. Biotic potential, environmental resistance (limiting factors) and competition
 9. Adaptations to change, including natural and artificial selection
 10. Biodiversity and extinction
 11. Succession
2. Pesticides/Toxic Chemicals (not every semester)
 1. Types of pesticides
 2. Environmental problems - including biological magnification
 3. Alternatives to pesticides
 4. Toxic wastes
3. Water
 1. Hydrologic Cycle
 2. Availability and distribution
 3. Water pollutants, including nutrients and eutrophication
 4. Water reclamation plants and other solutions
4. Energy Resources
 1. Current energy sources - fossil fuels, hydroelectric power...
 2. Nuclear power (only if time permits)
 3. Renewable energy - solar energy and other alternate energy sources - including geothermal, hydrogen, biomass and wind power
5. Air
 1. Natural contaminants
 2. Global pollution problems - global warming, acid deposition, CFC's & ozone
 3. Major air pollutants
 4. Solutions
6. Human Population
 1. Population growth and projections
 2. Malthusian Theory
 3. Environmental impacts of burgeoning population
 4. Contributing factors
 5. Solutions/birth control
7. Economics, the Environment and the Future

Lab: (if the "Lab Hours" is greater than zero this is required)

9. Course Student Learning Outcomes:

1. Examine environmental issues from an ecological perspective.
- 2.

Demonstrate an understanding of the environmental problems and assess the impact and role of human beings on this planet.

10. Course Objectives: *Upon completion of this course, students will be able to:*

- a. Demonstrate an understanding of several fundamental concepts of ecology, environmental problems and conservation.
- b. Explain several basic ecological principles.
- c. Formulate solutions to reduce several major environmental problems.
- d. Comprehend the heavy demands being placed on this planet's natural resources by human beings and be able to suggest alternatives for reducing our impact.
- e. Demonstrate an understanding of the selection and implementation of natural resource management procedures based on ecological and economic criteria.

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- f. Demonstrate an understanding of the selection and implementation of natural resource management procedures based on ecological and economic criteria.
- g. Apply principles learned in this course to their personal lives by independently developing methods for conserving resources.
- h. Demonstrate an awareness of sound procedures for responding to potential environmental problems in personal and business arenas.

11. Methods of Instruction: (*Integration: Elements should validate parallel course outline elements*)

- a. Distance Education
- b. Lecture

Other Methods:

a. Use of media materials when appropriate, including: PowerPoint, websites, CD/DVD, video, overhead transparencies and demonstrations b. Some sections of this course are offered in an online format, utilizing computer resources c. Students are encouraged to enroll in the separate lab course (NR-001L) where they can obtain first hand experiences with topics and concepts covered in this lecture course.

12. Assignments: (*List samples of specific activities/assignments students are expected to complete both in and outside of class.*)

In Class Hours: 54.00

Outside Class Hours: 108.00

a. In-class Assignments

1. Take comprehensive notes during lecture
2. Practical examinations
3. Classroom discussions
4. In-class quizzes and writing assignments.

b. Out-of-class Assignments

1. Read assigned chapters in textbook
2. As assigned, answer review questions at the end of each chapter or in study guide
3. Study and learn assigned vocabulary and concepts
4. Complete awareness assignments, such as: water use records and environmental news
5. Complete online based homework as assigned

13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*

- College level or pre-collegiate essays
- Written homework
- Reading reports
- Group activity participation/observation
- True/false/multiple choice examinations
- Mid-term and final evaluations
- Student participation/contribution
- Other
 - a. Prepare written responses to chapter and/or study guide questions as assigned
 - b. Objective questions will be used on exams
 - c. Answer essay questions that are included on some exams
 - d. Evaluate fact-claims made and the nature of the reasoning from which they have been derived.

14. Methods of Evaluating: Additional Assessment Information:

15. Need/Purpose/Rationale -- *All courses must meet one or more CCC missions.*

IGETC Area 5: Physical and Biological Sciences (mark all that apply)

B: Biological Science without a Lab

CSU GE Area B: Physical and its Life Forms(mark all that apply)

B2 - Life Science

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PO-GE C1-Natural Sciences

Explain concepts and theories related to physical, chemical, and biological natural phenomena.

Apply the scientific process and its use and limitations in the solution of problems.

Draw a connection between natural sciences and their own lives.

Make critical judgments about the validity of scientific evidence and the applicability of scientific theories.

Demonstrate knowledge of the use of technology in scientific investigation and human endeavors, and the advantages and disadvantage of that technology.

Use college-level mathematical concepts and methods to understand, analyze, and explain issues in quantitative terms.

IO - Critical Thinking and Communication

Apply principles of logic to problem solve and reason with a fair and open mind.

Summarize, analyze, and interpret oral and written texts, with the ability to identify assumptions and differentiate fact from opinion.

16. Comparable Transfer Course

University System	Campus	Course Number	Course Title	Catalog Year
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17. Special Materials and/or Equipment Required of Students:

18. Materials Fees: Required Material?

Material or Item

Cost Per Unit

Total Cost

19. Provide Reasons for the Substantial Modifications or New Course:

periodic update of course

20. a. Cross-Listed Course (*Enter Course Code*): *N/A*

b. Replacement Course (*Enter original Course Code*): *N/A*

21. Grading Method (*choose one*): Letter Grade Only

22. MIS Course Data Elements

a. Course Control Number [CB00]: CCC000281015

b. T.O.P. Code [CB03]: 11500.00 - Natural Resources

c. Credit Status [CB04]: D - Credit - Degree Applicable

d. Course Transfer Status [CB05]: A = Transfer to UC, CSU

e. Basic Skills Status [CB08]: 2N = Not basic skills course

f. Vocational Status [CB09]: Not Occupational

g. Course Classification [CB11]: Y - Credit Course

h. Special Class Status [CB13]: N - Not Special

i. Course CAN Code [CB14]: *N/A*

j. Course Prior to College Level [CB21]: Y = Not Applicable

k. Course Noncredit Category [CB22]: Y - Not Applicable

l. Funding Agency Category [CB23]: Y = Not Applicable

m. Program Status [CB24]: 1 = Program Applicable

Name of Approved Program (*if program-applicable*): NATURAL RESOURCES

Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)

23. Enrollment - Estimate Enrollment

First Year: 0

Third Year: 0

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24. Resources - Faculty - Discipline and Other Qualifications:

a. Sufficient Faculty Resources: Yes

b. If No, list number of FTE needed to offer this course: N/A

25. Additional Equipment and/or Supplies Needed and Source of Funding.

N/A

26. Additional Construction or Modification of Existing Classroom Space Needed. (*Explain:*)

N/A

27. FOR NEW OR SUBSTANTIALLY MODIFIED COURSES

Library and/or Learning Resources Present in the Collection are Sufficient to Meet the Need of the Students Enrolled in the Course: Yes

28. Originator Kurt Leuschner Origination Date 08/25/17