ENVIRONMENTAL STUDIES 301 – Earth as an Ecosystem
Fall, 2001

Class Hours: MTWRF 11:00-11:50 a.m. in Shaw Smyser 115

Instructors:
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Supplemental Instruction (SI) Leader:
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Required Texts:
1. *Principles of Environmental Science: Inquiry and Applications*
   by W.P. Cunningham and M.A. Cunningham (McGraw-Hill, 2002).
2. *Sources: Notable Selections in Environmental Studies, Second Edition*

Course Description:
In this course, the Earth’s environment is described in terms of its ecosystems and the
physical, chemical, Geological, and biological processes that maintain conditions suitable
for life. We will also discuss the role of humans in some of these processes. We will
begin by discussing the underlying principles of ecology, how matter and energy cycle
within and through the Earth's ecosystems and how they are used by living organisms.
Then we will examine the Earth’s climate, how it is regulated and how it has changed
through Earth history. Ecological concepts related to biological communities will also be
covered as well as principles of evolution, mass extinctions, and changes in biodiversity.
Finally, we will discuss some important Earth resources, including water, soil, and
minerals, and examine the impact of human use of these resources on the environment.

Course Learning Objectives:
Upon successful completion of Environmental Studies 301:
1. Students will understand the ecological significance of the different levels of
   organization within the biosphere.
2. Students will be able to identify important nutrients and explain how these nutrients cycle globally and within ecosystems.
3. Students will understand the factors and mechanisms that control regional and global climate.
4. Students will be able to describe the evidence for global warming and argue on either side of the controversy.
5. Students will understand general concepts concerning the evolution and distribution of Earth's biodiversity.
6. Students will understand and describe the spatial distribution of Earth's major biomes and be able to describe the major climate patterns and vegetational forms that determine these biomes.
7. Students will be able to discuss the availability of key resources (water, soil, minerals) and explain how human use of these resources affects the environment.

**Required Elements:**

**Quizzes** – Six quizzes (worth 10 points each) will be given throughout the quarter on Fridays. These quizzes will consist of five multiple-choice or fill-in-the-blank questions and will contain material covered in class during the preceding week. There will be no make up quizzes, but each student will be allowed to drop one quiz grade.

**Exams** – Two midterm exams will be given throughout the quarter. These exams will contain multiple-choice and short-answer questions and will cover all of the assigned reading and classroom lectures and activities for the period that the exam covers (given below in schedule). In addition, there will be a comprehensive final exam at the end of the quarter. The final exam will be twice as long as the midterm exams. Half of the questions on the final will relate to material covered since the second midterm exam (Nov. 13 - Dec. 6); the second half of the questions will relate to material covered over the entire quarter (Sept. 25 – Dec. 6).

**Exercises** – Approximately six exercises will be given throughout the term, either during class time or as take-home work. Each student will be allowed to drop one exercise grade.

**Note:** There will be no make-up opportunities for any quiz, exam, or exercise. In addition, no work will be accepted after the due date.

**Grading:**

1st Exam = 100 points
2nd Exam = 100 points
Final Exam = 200 points
Quizzes = 10 points each
Exercises = 10 points each

Final grades are based on % of total points. A = 90-100%; B = 80-89%; C = 68-79%; D = 50-67%; and F = less than 50%. Provided that you do all the work, study, and gain an acceptable understanding of the material you will earn a C. To earn a B, you will have to work harder and truly distinguish yourself, and an A will be awarded for excellent performance.
Academic Honesty:
Students are expected to be academically honest. Academic dishonesty is defined in the Proscribed Conduct section of the Student Judicial Code in the back of your academic catalog. Plagiarism is defined in this section as "the appropriation of any other person's work and the unacknowledged incorporation of that work in one's own work offered for credit" (CWU Undergraduate/Graduate Catalog, 2000-2001, p. 244). Plagiarism may range from an entire paper to a phrase within a sentence. When you are paraphrasing an idea that is not your own and is not common knowledge, you need to cite the source. Copying the work of other students on tests, exercises, or extra credit is also considered academically dishonest. Academic dishonesty in any form will result in a failing grade. If one student copies the work of another student, then both students will receive a failing grade.

SCHEDULE
(TC = Tom Cottrell; CG = Carey Gazis; CK = Chris Kent)
Please read the designated reading assignment for a given week before that week begins (C&S = text by Cunningham and Cunningham, Sources = book edited by Goldfarb). Additional reading assignments will be given throughout the term and will be announced in class.

Week 1
Dates       Topics                                      Reading
Sept. 26, 27, 28 Introduction, Environmental issues and the scientific method (TC, CG, CK) C&C Chapter 1 Sources Chapter 2.4

Week 2
Dates       Topics                                      Reading
Oct. 1, 2, 3, 4, 5 Principles of ecology (TC), Biogeochemical cycles (CG) C&C Chapter 2 Sources Chapter 2

Quiz 1 – Friday Oct. 5

Week 3
Dates       Topics                                      Reading
Oct. 8, 9, 10, 11, 12 Biogeochemical cycles (CG), Atmosphere and climate (CK) C&C Chapter 2, C&C Chapter 9

Quiz 2 – Friday Oct. 12

Week 4
Dates       Topics                                      Reading
Oct. 15, 16, 17, 18 Controls on the Earth's climate (CK) C&C Chapter 9 Sources Chapter 9.1

Friday October 19th – Exam #1 (covering Sept. 26-Oct. 17)

Week 5
Dates       Topics                                      Reading
Oct. 22, 23, 24, 25, 26 Climate change and global warming (CG) C&C Chapter 9
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<th>Week</th>
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<tr>
<td>6</td>
<td>Oct. 29-31, Nov. 1, 2</td>
<td>Populations and communities, Evolution (TC)</td>
<td>C&amp;C Chapter 3</td>
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<td>Nov. 5, 6, 7, 8</td>
<td>Hydrologic cycle, Water resources (CK)</td>
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<td>Quiz 4 – Friday Nov. 2</td>
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<td>Nov. 13, 14, 15, 16</td>
<td>Biomes and biodiversity (TC)</td>
<td>C&amp;C Chapter 5</td>
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<td>Quiz 5 – Friday Nov. 16</td>
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<td>Nov. 19, 20, 21</td>
<td>Food and agriculture (CK)</td>
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<td>Quiz 6 – Friday Nov. 30</td>
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<td>10</td>
<td>Nov. 26, 27, 28, 29, 30</td>
<td>Food and agriculture (CK), Environmental geology (CG)</td>
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<td>Quiz 7 – Friday Nov. 4</td>
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<td>11</td>
<td>Dec. 3, 4, 5, 6</td>
<td>Earth resources, Wrap up (TC, CG, CK)</td>
<td>C&amp;C Chapter 11</td>
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<td>Quiz 8 – Friday Nov. 8</td>
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<td>Quiz 9 – Friday Nov. 16</td>
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**Thursday Dec. 13  12:00-2:00 p.m. -- Final Exam**  (covering all material, 1/2 from Nov. 13-Dec. 6, 1/2 from Sept. 25-Dec. 6)
Tips for Success in ENST 301

1) **Attend class.** It has been our experience as students and instructors that there is a strong correlation between attendance and performance. Students who rarely miss a class and actively participate in classroom discussions tend to perform well on tests; students who lack the discipline required for regular attendance tend to perform poorly. Therefore, we strongly encourage daily attendance. If you miss a class, have a classmate give you notes and an explanation of those notes.

2) **Take good notes.** Just being physically present in class is not enough. Write down everything on the board, make sketches of slides and overheads. Go over your notes after class and underline important ideas and clarify points while the ideas are fresh in your mind.

3) **Read textbook.** A fundamental element of a liberal education is the development of the ability to read critically. Hence, your success in this course will largely depend on the amount of time and effort you devote to the assigned readings. It is helpful to look at a chapter before it is discussed in lecture. However, the textbook is not a novel, so don’t read it like one (start to finish). Start a chapter by looking at the summary to find out what the chapter is about. Write down the big ideas on a piece of paper. Then flip through the chapter looking at the diagrams and reading the captions to understand the basic ideas. Look to the text to for clarification of ideas. Finally, after class, go back and skim the chapter to make sure you understand the concepts.

4) **Participate in exercises.** Some classes will be devoted to in-class exercises that will allow students to work with concepts covered during the week’s lectures. These exercises represent a vital component of test preparation. These times are also a good opportunity for you to ask the instructors questions.