Syllabus Fall 2004
ESP 101K — Fundamentals of Environmental Science

Instructor:

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Course Meetings:

Tuesdays & Thursdays - 11:00 to 12:15, 101 Bailey Hall

Course Overview

This course, Fundamentals of Environmental Science, is an examination of the science of environmental processes. You will be introduced to basic scientific principles, concepts, and methodologies in your study of the environment. Throughout the course, you will be reviewing the basic concepts of traditional natural science disciplines (e.g., chemistry, physics, geology, etc.), which are an important element in understanding the interdisciplinary nature of environmental science. However, the focus of this course is to study the interrelationships of the natural world, the environment, and impacts from humans. Consequently, we will be focusing on identifying and understanding environmental problems and examining potential solutions.

Resources:

There are a variety of resources available for this class, including:

Required Textbooks: Botkin, Daniel B. and Edward A. Keller, 2003. *Environmental Science: Earth as a Living Planet, Fourth Edition*, John Wiley & Sons, New York, ISBN: 0-471-38914-5.

Wagner, Travis and Robert Sanford, *Environmental Science: Active Learning Laboratories and Applied Problem Sets*, John Wiley & Sons, New York, ISBN: 0-471-67191-6. (Because this book was not released in time for this course, the labs and Problem Sets from this book have been posted in Blackboard.)

Student Review Guide: Your textbook was bundled with the Student Review Guide by Luczkovich, Joseph J and David B. Knowles, which is specifically designed to accompany the textbook.

Student Companion Site: This site contains Glossary and Flash Cards, Online Quizzing, Virtual Field Trips, Environmental Science Debates Online, Case Studies, and Environmental Issues Activities. **http://jws-edcv.wiley.com/college/bcs/redesign/student/0,,_0471389145_BKS_1215____,00.html**

USM On-line Support: This course has a designated Blackboard site that contains the problem sets, lecture notes, PowerPoint slides used for the lectures, announcements, discussions, and other course support activities. All students are expected to access this site and use it. If you are unfamiliar with Blackboard, the following link presents a quick guide for students. http://www.learn.maine.edu/crs/bb5_guide.html

Writing Course Link: As part of encouraging student's development as a writer this course is linked with English 100C College Writing. Diana Hacker, *A Writer's Reference, 5th Edition*, Bedford: Boston, is the suggested reference and writing guide.

Course Themes:

There are five thematic sections to the course:

Section 1 – Environmental Science Basics

Section 2 – Ecological Principles

Section 3 – Human Populations and Resource Needs

Section 4 – Energy and Pollution

Section 5 – Sustainability

Course Expectations:

The class is intended to be enjoyable, but it will be challenging. It will require your commitment and effort. Each class meeting will involve a basic lecture to highlight the important elements of the topic. To apply this information to real world environmental problems, class meetings will include group discussions, group activities, mini-writing assignments, and oral reports. Thus, this is an interactive participatory course. Students are expected to participate; course grades include participation as a significant component. Attendance is therefore mandatory. I reserve the right to also base a portion of the course participation grade on unannounced quizzes.

My goal is to create an atmosphere conducive to open learning. You are expected to respect the rights, opinions, and questions of your fellow students. Thus, disturbances, such as cell phones, chattering, rudeness, and harassment of any kind will not be tolerated.

*Tentative Lecture Schedule:

Week	Class	Topic	Readings	Assignments Due
1	Aug 31	Course Introduction Environmental Problems	Chapter 1	
	Sep 2	The Scientific Method	Chapter 2	
2	Sep 7	Experimental Design & Data Presentation		**PROBLEM SET** The Scientific Method Part 1
	Sep 9	Systems Dynamics	Chapter 3	
3	Sep 14	Biogeochemical Cycles	Chapter 4	**PROBLEM SET** The Scientific Method Part 2
	Sep 16	Ecosystems	Chapter 6	**PROBLEM SET** Quantification of Environmental Problems
4	Sep 21	Evolution & Biodiversity	Chapter 7	
	Sep 23	**EXAM 1**		**PROBLEM SET** Ecosystem Diagram
5	Sep 28	Human Population	Chapter 5	
	Sep 30	World Food Supply	Chapter 11	
6	Oct 5	Environmental Effects of Agriculture	Chapter 12	**PROBLEM SET** Recognizing Human Impacts
	Oct 7	Natural Resources	Chapters 13 and 14	
7	**Oct 12**	**NO CLASS - COLUMBUS DAY BREAK**		
	Oct 14	Water Supply	Chapter 20	**PROBLEM SET** Ecological Footprints and Sustainability
8	Oct 19	Minerals	Chapter 29	
	Oct 21	**EXAM 2**		**PROBLEM SET** Water Quality, Chemicals, and Consumer Choice
9	Oct 26	Energy Basics	Chapter 16 and pp. 162-164	
	Oct 28	Fossil Fuels	Chapter 17	
10	Nov 2	Non-Fossil Fuels	Chapters 18 and 19	**PROBLEM SET** Oil Consumption and Future Availability
	Nov 4	Environmental Health & Toxicology	Chapter 15	

Week	Class	Topic	Readings	Assignments Due
11	Nov 9	Water Pollution	Chapter 21	**PROBLEM SET** Introduction to Environmental Modeling
	Nov 11	**NO CLASS – VETERAN'S DAY**		
12	Nov 16	Air Pollution	Chapter 23	
	Nov 18	Global Warming & Ozone Depletion	Chapters 22 and 25	
13	Nov 23	Waste Management	Chapter 28	**PROBLEM SET** Society and Waste
	Nov 25	**NO CLASS - THANKSGIVING**		
14	Nov 30	**EXAM 3**		
	Dec 2	Urban Environments	Chapter 27	
15	Dec 7	Environmental Economics	Chapter 26	**PROBLEM SET** Review and Reflection
	Dec 9	Sustainability	Chapter 30	
	Dec TBD	**Final Exam**		

*****Lecture topics may change due to weather, pace, or the whims of fate.

Performance Evaluation:

Attendance – 15 points
Class Participation – 20 points
Problem Sets (11) – 110 points
Scheduled Exams (3) – 90 points
Unscheduled quizzes (?) -- ? points
Final Exam – 60 points

Problem Sets and Exams:

- Problems Sets require you to conduct basic research, perform basic calculations, and apply this information to answer questions related to a specific topic. You will be graded on accuracy, demonstrating an understanding of the concepts, and your ability to proper cite your sources. (See the lab manual posted in Blackboard for a citation guide.)

- All Problem Sets must be typed using 12-point type. The exception is that you must show your calculations, where requested. Consequently you may handwrite calculations.
- Graphs must be computer generated. You may use the software package of your choice.
- Problem Sets are to be submitted at the beginning of the designated class period. One-half point will be deducted for any submittal that is late (not ready at class) and one full point will be deducted for each day past the due date.

Electronic submittals will NOT be accepted.

Exams will include, but not be limited to, short answer, short essay, and fill-in-the blank. The exams will be based on the assigned readings, the Problem Sets, and class discussions. Because defining and understanding terms is an important element in environmental science, there will be a term definition section on each exam. Merely memorizing the term's definition is not as important. Use the publisher's website to help you study the term's meaning. There will be no make-up exams except for certain unexpected medical or other emergencies. You must contact me immediately and before an exam. All Problem Sets are due on the expected date. If you cannot attend class because of a conflict, you are responsible for notifying me as soon as possible and ensuring that I receive the assignment by the due date and time using fax or fellow student. The final exam will include a section on the course's final thematic section—Environmental Policy—and will be a comprehensive course overview.

Course Policies:

Academic Integrity

Academic integrity is taken very seriously in this course. Instances of Academic Integrity will be dealt in accordance with USM's Academic Integrity Code. When in doubt, ask the instructor! Types of academic integrity violations include, but are not limited to cheating, plagiarism, and fabrication:

Cheating = Using unauthorized notes, study aids, or information on problem sets or exams.

Plagiarism = Submitting material that in part or whole is not entirely your own work without proper attribution. For example, copying information from textbooks or the Internet in your problem sets without proper referencing. This also includes attempting to submit another person's data/results as your own regardless of whether you have their permission.

Fabrication = Falsifying or inventing any information, data, or citation for your problem sets.

Grading

You will be graded based on your performance throughout the course. Not only are you expected to come to class, you are expected to contribute to discussions; it is your responsibility to yourself, to your fellow classmates, and to me. If you miss class, obtain the notes from a classmate and keep up on the readings. If you become confused about lecture or reading material (or intrigued) stop by during my office hours, make an appointment, call, or email me.

Attendance and Participation

Attendance and participation count for 15 percent of your grade. I reserve the right to employ additional quizzes on the readings as part of this grade if I feel it is necessary (i.e., I will use quizzes on the readings if it is apparent you are not completing the reading).

Missed Classes and Late Assignments

There are no make-up quizzes or exams unless the need for one is discussed prior to the scheduled exam time and even then it is at my discretion. Late assignments are not accepted unless it is arranged in advance or it is necessary due to a documented emergency. Acceptance of a late assignment, which is at my discretion, will be penalized 10% for each day late. Remember that if you miss a class in which there is a quiz or an in-class assignment, your grade will be affected twice (attendance and quiz/assignment scores). Thus, it is imperative to contact me with problems before they arise. I have voice mail and email so I can be contacted day or night (note: both voice mail and email time and date your message.) If you start to feel like you are falling behind or are having difficulty, see me immediately.

Incompletes

Life presents unexpected surprises and an incomplete is sometimes a necessary choice. I will only give an incomplete for reasons that arise in the last two weeks of the semester. If you need to take an incomplete, you must meet with me before the end of the semester. According to USM guidelines, if you take an incomplete, you must complete the course by the end of the following semester or your grade automatically becomes an F.

The *Americans with Disabilities Act*

The Americans with Disabilities Act of 1992 is a federal law mandating the elimination of discrimination against persons with disabilities. If you need course adaptations or accommodations, please make an appointment to see me as soon as possible. Only students who are registered with the Office of Academic Support for Students with Disabilities (237 Luther Bonney, 780-4706) are eligible for accommodation. Students experience difficulty in courses for a variety of reasons. For problems in writing skills and time management, make an appointment to see a student tutor at the Academic Support Center, 242 Luther Bonney (780-4470). Help is also available through the Counseling Center, 106 Payson Smith (780-4050). In addition, the Learning Centers in Portland, 253 Luther Bonney Hall (780-4228) and Gorham, Costello Sports Complex (228-8224) offer a series of academic workshops.