

ENVIRONMENTAL GEOLOGY:

GLOBAL WARMING

15-GEOL-106

Spring 2002

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Of the environmental challenges facing Earth, the one having perhaps the most and longest lasting impacts is global warming. Since no one can predict the future, it may be relevant to consider the scientific basis for global warming events to better understand what may lie ahead. This course will examine the general topic of climate change and then ask:

Are the scientific uncertainties surrounding Global Warming large enough to preclude developing mitigation policies?

COURSE OBJECTIVES:

The course objectives are for you to:

- 1. Recognize that global environmental issues are complex, interlinked, and poorly understood.**
- 2. Develop sufficient background insights on global warming to become an informed participant in policy decisions.**

APPROACH

The following is extracted from the *Guidelines for Adoption of General Education Courses* at UC and provides insight into the philosophy upon which this course is built.

What is special about a General Education Course? Four major characteristics distinguish General Education courses: the ways in which the subject is approached, the use of communication and critical thinking skills, enrollment, and the course syllabus.

Approaches to the subject matter: The emphasis in a General Education course is on process, on how the subject is approached. Many General Education courses will typically introduce students to a few major works or important results, showing how specialists in their subject think about their material, rather than surveying entire fields. After completing a General Education course, a student should appreciate the dynamic and problematic nature of the intellectual universe of which the subject is a part. In some courses this appreciation will be developed through the reading materials used. Many General Education courses will not rely exclusively on a textbook

where the presentation of a fixed body of knowledge is the main pedagogical goal, rather reading material will commonly include original materials from the professional literature of the course field. A General Education course will commonly integrate subject matter across the disciplines.

Communication and Critical Thinking skills: Many General Education courses will directly involve students in active modes of critical thinking and expression. As such, a General Education course will typically offer students opportunities to practice, under appropriate supervision, methods of critical analysis and methodologies in inquiry, information acquisition, and interpretation. At the same time, some General Education courses will demonstrate why passive methods of learning are inadequate.

The course syllabus: A General Education course will have a clear, detailed syllabus so that students will know precisely what communicating and critical thinking skill will be emphasized. The syllabus will make clear to the student what the evaluation process in the course will be. The evaluation processes should be designed to encourage and engage the use of communicating and critical thinking skills.

NUTS AND BOLTS OVERVIEW

The format of the course is designed such that you can formulate your own answer to the question posed above. Each week we will examine the ongoing or past global warming events, evidence for them, their impacts and current understanding of their cause. Logistically this course will be divided into lecture and recitation sections. The lectures will be Mondays and Wednesdays and will present background information. Recitations on Fridays, quizzes and homework exercises will sharpen and help express your view.

The weekly units will form the basis for a final paper. Since the approach employed here is consistent with UC's approach to General Education we require effective communication skills. **We will assume that unless you can effectively convey your views on a given issue, you do not fully understand it.** Critical thinking is the second important skill to be practiced.

The dynamic nature of the topic precludes a formal "textbooks" for this class. Reserved readings, material from class lectures, and independent Internet searches will provide current information on global warming. Evaluation will consist of a series of weekly assignments and a final essay rather than traditional exams.

EVALUATION

This course will be evaluated on the basis of accumulated points. All start with 0 points and the grades will stratify according to how much effort you expend. Points may be accumulated in three ways: 1) Class attendance, 2) quizzes and 3) weekly homework. A final "weekly paper" is almost 1/3 of the possible points. Specific point distribution follows:

Week	Attendance	Quiz	Homework/ paper	Course grades will be assigned as follows:	
				For letter grade of	Accumulate at least this many points:
1	21	30	25		
2	21	30	50	A	1822
3	21	30	75	A-	1683
4	21	30	100	B+	1485
5	21	30	125	B	1287
6	21	30	150	B-	1089
7	21	30	175	C+	990
8	21	30	200	C	891
9	21	30		C-	792
10	21		600	D	594
				F	<594
Total	210	270	1500		
Total Possible:	1980				

e.g. point total of 1658 and above will give a A-

All assignments must be typed.

All assignments are due on Monday at the start of the class period, 50% off earned grade for first day late, 100% off for second day late. Your TA's have a very heavy work load to provide the feedback necessary for this approach to work. This timetable is essential to allow them to do their job.

The following page is a sample of a cover page that will be included with most assignments. Although the point values will vary depending on the exercise, **the same categories** will be used to evaluate all assignments.

EXAMPLE ASSIGNMENT

Name _____

Objective: To allow a preliminary assessment of individual skill levels and background understanding.

Skills employed: Reading comprehension, critical analysis, and writing.

Task: Answer the following question in an essay

How will any global warming impact the community you live in?

You are trying to convince your classmates of your views.

Guidelines:

Use whatever resources you want to support your argument.

Paper must be typed, a maximum of TWO pages total.

Emphasis is on answering the question in an objective, logical fashion.

Evaluation:

The 100 points for this assignment are distributed as follows:

- _____ 1. (8) The paper is honest, not plagiarized. Automatic ZERO if yes.
- _____ 2. (8) The paper enters the discussion at the appropriate level. Addresses audience in question.
- _____ 3. The paper develops its thesis with a subthesis structure that
_____ (10) has relevant subtheses supporting each other
_____ (10) is a coherent piece of reasoning, linked by logical transitions.
_____ (10) addresses other interpretations or weaknesses.
- _____ 4. For each subthesis, the writer furnished evidence/information that
_____ (10) is as great in quantity as is appropriate.
_____ (10) is as specific/concrete as is appropriate.
_____ (10) is relevant.
- _____ 5. (10) The conclusion is thoughtful and cogent; it contributes more to the question than a mere summary
- _____ 6. (8) Spelling/punctuation, and correct grammar. .
- _____ 7. (6) Proper citations.

RESOURCES

The primary resource for this class is its home page:

<http://TVL1.GEO.UC.EDU/warm/default.html>

All class handouts, lecture notes, class assignments, links to Internet sites, and other useful information -

Teaching Staff:

Thomas V. Lowell 604 Geology/ Physics. Office Hours 8-9 Mon, Wed. or by appointment.

NOTE - All staff will meet at other times by appointment.

We all have mailboxes in the Geology office Room 500 Geo/Phy.

-Geology/ Physics Library (6-1324):

Will have materials and supplemental information on reserve. It is located in Braunstein, its hours are posted outside the entrance which is on the ground level north side because of the construction.

LOGISTICS

We want to access the World Wide Web for information. Determine your best access to the Internet and you may want to establish an e-mail account. Several labs on campus are available for use.

Printed lecture notes will be passed out for each class meeting and posted on the class Web site. It is strongly encouraged that you keep all handouts and lecture notes in a three ring binder, in effect creating a course pack.