ENVS 80B: *Ecological Forecast for Global Warming*

Fall 2009 Syllabus

Instructor: Dr. Michael E. Loik, Environmental Studies, Office: NatSci2 room 431, mloik(at)ucsc.edu
office hours: Th 1 - 3 pm or by appt.
Teaching Assistant: Adam French, Environmental Studies, Office: ISB room 473, akfrench(at)ucsc.edu
office hours: T, Th 12 – 1, or by appt.
Lecture Days/Time: T, Th 10 – 11:45 am **Location:** Thimann Lecture 3
Website: http://www.ic.ucsc.edu/~mloik/envs80b/

COURSE DESCRIPTION
The class sessions will consist of four main components:

I. **General introduction to the functioning of the weather and climate systems**: cycles and processes, the greenhouse effect, greenhouse gases, weather
II. **Climate changing activities**: land use, forestry, industry, transportation, household energy use
III. **Climate change impacts**: plants, animals, ecosystems, water, agriculture/food, human health
IV. **Climate change policy and the public**: international environmental agreements, FCCC/Kyoto Protocol, domestic policy.

The class structure will vary between lectures, discussions, web activities, and videos. We will supplement this format with invited speakers on various topics as well as case studies examined in the course. In general, throughout the course, we encourage you to meet each book, article, lecture and film with a critical eye.

Course reading materials:

1. Houghton, J. (2009) *Global Warming: The Complete Briefing.* Cambridge University Press: Cambridge, UK (4th edition).
2. Selected Articles on the class webpage http://www.ic.ucsc.edu/~mloik/envs80b/ (**articles are yet to be posted**)

COURSE REQUIREMENTS
Overview This course is a broad overview of the impacts of human activities on the global climate system. Topics include how the climate system functions, how changing climate affects ecosystems and biodiversity, how human activities (e.g. agriculture, industry, transportation) contribute to climate change, and how climate change science is translated into policy action as well as public understanding and citizen action.

This course has been designated with a **T7** general education code. This is meant to "expose students to introductory-level themes of broad social or intellectual relevance" and can thereby serve as your topical Natural Science *or* Social Science general education requirement ***but not both***. Please see the UCSC General Course Catalog 2006-2008 for a description of the General Education Codes.

It is important that you keep up with the readings so that everyone may meaningfully participate in the class discussions. All readings are required to be completed *before* the class for which they are assigned. Other responsibilities include attendance in all class sessions and handing in completed assignments on time.

Note: We will deduct 50% of points for each class meeting that an assignment is late. Also, **plagiarism is not tolerated**, and will result in not passing the course, as well as university action. Please see the class website for more details on plagiarism. All work in this course must be your original work (not previous papers from this or another class).

Grading

Written Assignments (two times during the quarter @ 10 pts each)	20 pts
Pop quizzes (multiple times during the quarter, there will be no "make ups" for missed quizzes)	5 pts
Midterm Examination	35 pts
Final Examination	40 pts

	Total: 100 points

Important Dates

- **Written assignments:** **Due *at the beginning of class* on October 15, November 19**
- **Midterm Examination:** **October 29 in class**
- **Final Examination:** **December 7th, noon – 3 pm, Thimann 3**

Attendance, Class Participation and Written Assignments You are expected to attend all sessions and to engage critically with the readings and the issues that are discussed. Each class session will build upon previous sessions. Your participation is valued

and will demonstrate your preparation for the class discussions. An important requirement will be that you come to the class session with the completed assignment. **You must bring a hard copy of the assignment to class. Emailed assignments will not be accepted.**

Your completed responses to these assignments must be typewritten and **no more than two double-spaced pages total,** using 12 pt Times New Roman with 1" margins. This means that the written assignments must be clearly written and concise. **The assignments will be posted to the class website (**http://www.ic.ucsc.edu/~mloik/envs80b/**) one week before they are due.** The assignments will be designed to make you think about the class material and will prepare you for the types of short-answer and written essay questions that you will see on the midterm and final exams. In order to answer these questions, we expect that you will refer to past readings and lectures as well as additional sources.

Exams The examinations will be closed-book and no notes will be allowed. Dates and times for the examinations are final, so see the instructor or the TA immediately if you anticipate any kind of conflict or problem. The final exam will be cumulative in the sense that it builds on concepts and foundations discussed in the first portion of the course. The content for these examinations will come from the lectures, as well as the required readings. Unfortunately, in lecture we will not be able to discuss many important and worthwhile facets of the readings so it will be your responsibility to engage both critically and mindfully with these readings outside of the class sessions. To help in this endeavor, you may wish to ask yourselves the following questions: What are the main points or themes in the reading? How is this work similar to or different from other course material, your own ideas, or other information you have come across in the past? Where are possible weaknesses in the author's arguments? Where could s/he have explained assertions more deeply/clearly? Do you agree with the author's central assertions, theories, and/or ideas? If so, why? If not, why not? Writing out answers to these questions will only help you as you prepare for the examinations as well as the class discussions.

CLASS LECTURE AND READING SCHEDULE

Date	**Topic**	**Readings/Assignments** (to be completed before class)
September 24	Introduction to the course	---
September 29	Climate: Cycles and Patterns	Houghton: Chapter 1, Chapter 5 *Written Assignment #1 posted to class website*
October 1	Weather: Processes and Impacts	Houghton: Chapter 1, Chapter 5 Supplemental readings posted on class website
October 6	Greenhouse Gases and the Greenhouse Effect	Houghton: Chapters 2 & 3
October 8	Land-Use and Land-Use Change	Reading to be posted to class website
October 13	*Jeff Bury: Andean Glaciers & Livelihoods*	Houghton: pp. 187 - 202
October 15	*Adam French: The Signs of Climate Change*	Houghton: pp. 172 – 186; 203 - 227
October 20	Carbon Cycling	Houghton: pp. 34 - 50
October 22	Extreme Events	Houghton: pp. 137 - 166
October 27	Biological Resources	Houghton: pp. 203 - 208; Supplemental readings posted on class website
October 29	**Midterm Examination**	*Written Assignment #2 posted to website*
November 3	Freshwater Resources	Readings to be posted on class website
November 5	Guest Lecture TBA	
November 10	*What is UCSC Doing to Reduce CO_2 Emissions?* *Patrick Testoni: Physical Plant Energy Manager*	
November 12	Rising Sea Levels	Houghton: pp. 172 -186
November 17	Energy: Carbon-Based Industry & Society	Houghton: Chapter 9
November 19	Human Health	Houghton: pp. 213 - 227 **Written Assignment #2 due in class**
November 24	International Environmental Agreements and Policy: FCCC/Kyoto Protocol/Copenhagen	Houghton: Chapters 9 & 10
November 26	***Holiday - Thanksgiving***	---
December 1	International Environmental Agreements and Policy: FCCC/Kyoto Protocol/Copenhagen	Houghton: Chapters 9 & 10
December 3	Approaches to a Cleaner Energy Future	Houghton: Chapter 11
December 7	***FINAL EXAM***	Noon – 3 pm!; **Thimann 3** (same room as lectures)