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office hours: Monday 10 AM – noon and by appt.
Wednesday 10 – 11 AM and by appt.

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Days/Time: T/H 10-11:45 AM **Location:** Oakes 105

Website: <http://people.ucsc.edu/~mboykoff/ENVS80b.htm>

COURSE DESCRIPTION

The class sessions will consist of four main components:

- I. **General introduction to the functioning of the climate system:** cycles and processes, the greenhouse effect, greenhouse gases, historical climate patterns, climate change models
- 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, political economics, activism, U.S. mass media

The class structure will vary between lectures, discussions and films. During this quarter 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. (2004) *Global Warming: The Complete Briefing* Cambridge University Press: Cambridge, UK (3rd edition).
2. Leggett, J. (2001) *The Carbon War*. Routledge: New York, New York, U.S.
3. Speth, J.G. (2004) *Red Sky at Morning*. Yale University Press: New Haven, Connecticut, U.S.
4. Gelbspan, R. (2004) *Boiling Point*. Perseus Books: New York, New York, U.S.
5. Selected Articles on Electronic Reserves (ERES): eres.ucsc.edu (**PASSWORD: climatechange**):
 - Intergovernmental Panel on Climate Change (IPCC) Third Assessment Reports – Summaries of Policymakers (SPM):
 - Watson, R. T. & D. J. Verardo (2000) SPM: Land Use, Land-Use Change, and Forestry. Geneva, Switzerland: Intergovernmental Panel on Climate Change (IPCC)
 - McCarthy, J. J. et al. (2001) SPM: Impacts, Adaptation and Vulnerability. Geneva: IPCC
 - Christy, J.R. (2003) ‘The Global Warming Fiasco’, in *Global Warming and other Eco-Myths: How the Environmental Movement Uses False Science to Scare Us to Death*, Bailey, R. (ed.) Competitive Enterprise Institute/Prima Publishing: Roseville, California, U.S.
 - Balling Jr., R.C. (1995) ‘Global Warming: Messy Models, Decent Data and Pointless Policy’, in *The True State of the Planet: Ten of the World’s Premier Environmental Researchers in a Major Challenge to the Environmental Movement*, Bailey, R. (ed.) Competitive Enterprise Institute/Free Press: New York, New York, U.S.
 - Michaels, Patrick J. (2004) *Meltdown: The Predictable Distortion of Global Warming by Scientists, Politicians, and the Media*. Cato Institute: Washington, D.C., U.S.; pp. 195-206.
 - Hawkin, P., Lovins, A. & Lovins, L.H. (1999) *Natural Capitalism: Creating the Next Industrial Revolution*, Little, Brown & Co.: Boston, Massachusetts, U.S.; pp. 234-259.

Houghton (2004), Leggett (1999) Speth (2004) and Gelbspan (2004) are available at
***The Literary Guillotine* (204 Locust St.; 457.1195; OPEN MON-SAT 10-6 PM)**

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 2004-2005 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. All work in this course must be your original work (not previous papers from another class).

Grading

Written Assignments (three times during the quarter @ 10 pts each)	30 pts
First Examination	35 pts
Second Examination	35 pts

	Total: 100 points

Important Dates

- **Written assignments:** Due at the beginning of class on October 6th, October 25th, November 17th – **10 points each**
- **First Examination:** October 27th - **35 points**
- **Second Examination:** December 6th, 7:30-10:30 PM, Oakes College room 105 - **35 points**

Attendance, Class Participation and Written Assignments/Comment Sheets

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 in the three noted weeks 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 this assignment must be typewritten and **no more than four double-spaced pages total**, using 12 pt Times New Roman or Californian FB font 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://people.ucsc.edu/~mboykoff/ENVS80b.htm>) one week before they are due.

The assignments consist of two parts:

1. **responses** to particular questions: 1-2 double-spaced pages
2. **comments** on previous course material: 1-2 double-spaced pages

In the **first part** of the assignment, the questions will be designed to make you think about the class material and will prepare you for the types of 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. **At least two in-text/end-of-text citations** must be included in each assignment (only one may be web-based).

IMPORTANT: In-text citations are markers for the more complete reference at the end of the text. They are not the same thing. Please see the instructor if this is unclear.

There are a number of acceptable ways to cite references. Here are few examples of **in-text citations**:

- in-text citations of paraphrased material:

In the crucible of news production, as elsewhere, disciplinary practices make individuals both the object of discipline and the instruments of its exercise (Foucault 1979).

- in-text citations of quoted material:

According to Sharon Dunwoody and Hans Peter Peters, the typical journalist in the U.S. is “even less likely to have majored in science or math than is the average US resident” (Dunwoody & Peters 1992; p. 208).

Here are some examples of **end-of-text citations**:

- a book:

Hardy, J. T. (2003) *Climate Change: Causes, Effects, and Solutions* Wiley & Sons Ltd: London, UK

- a book chapter in an edited volume:

Christy, J.R. (2003) The Global Warming Fiasco, in *Global Warming and other Eco-Myths: How the Environmental Movement Uses False Science to Scare Us to Death*, Bailey, R. (ed.) Competitive Enterprise Institute/Prima Publishing: Roseville, California, U.S.

- an article:

Loik, M.E. & J. Harte (1996) High-temperature Tolerance of *Artemisia Tridentata* and *Potentilla Gracilis* Under a Climate Change Manipulation *Oecologia* 108: 224-231.

- a worldwide web citation:

Griffith, A. ‘Everything One Needs to Know about the History of Owens River Valley Snowfences (and More)’ (Date Accessed: September 20th, 2005; Date Posted: August, 2005) www.owenssnowfences.com

- a report:

Watson, R. T. & D. J. Verardo (2000) Summary for Policymakers: Land Use, Land-Use Change, and Forestry. Geneva, Switzerland: Intergovernmental Panel on Climate Change (IPCC)

More examples of in-text and end-of-text citations can be found in the required readings for this class. See the instructor or teaching assistant in office hours if you need help constructing proper citations. You will be expected to cite properly and this will be part of the assignment evaluation.

In the **second part** of the assignment, the comments must also be written concisely, while the points raised in the comment sheets must be elaborated clearly. These are to consist of elements of the following:

- Commentary on key points in the readings, a portion of a reading, patterns or theme(s) between readings that you found important, problematic, insightful etc.
- Commentary on agreements or disagreements that you may have with portions, keys, assertions or themes in the readings
- Reflections on something surprising, new or counterintuitive that you learned from the readings

Basically, this second part is an open space (within the page limits) to comment on the material that you are engaging with critically. In short, think about what you are reading and write clearly about your views.

Exams

The examinations will both be closed-book and no-note exams. 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 from 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?
- What is the author's central thesis?
- 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)
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Component I: Introduction to the Climate System

September 22	Introduction to the course: A Top Ten	--
September 27	Climate and Weather: Cycles and Processes <i>Film: Turning Up the Heat (1996)</i>	Houghton – Chapter 1 Gelbspan – snapshot #3 (pp. 63-66) Speth – prologue & Chapter 1
September 29	Greenhouse Gases and the Greenhouse Effect – The Basics (What is it? Why is it happening?)	Houghton – Chapters 2 & 3 Gelbspan – Chapter 1 <i>Written Assignment #1 posted to class website</i>
October 4	Historical Climate Patterns <i>Film (excerpt): Frontline/NOVA – What's Up with the Weather? (2000)</i>	Houghton – Chapter 4 Gelbspan – Chapter 2; snapshot #1 (pp.19-22) Speth – part of Chapter 3 → pp. 43-55
October 6	Uncertainty and Climate Science Communities – from the Intergovernmental Panel on Climate Change to climate change 'skeptics' <i>Film (excerpt): NOW with Bill Moyers – The Climate Debate (2004)</i>	Houghton – pp. 216-225 Christy (2003) (on ERes) Balling Jr. (1995) (on ERes) Gelbspan – Chapter 3 Written Assignment #1 due in class
October 11	Climate Models and Modeling <i>Guest speaker: Lara Kueppers, postdoctoral researcher, Department of Earth Sciences, UCSC</i>	Houghton – Chapter 5 & pp. 133-134 Leggett – prologue & Chapter 1

Component II: Climate Changing Activities

October 13	Land Use and Land-Use Change and Forestry: Sources and Feedbacks <i>Guest speaker: Alex Gershenson, doctoral candidate, Environmental Studies, UCSC</i>	Watson & Verardo (2000) (on ERes) Leggett – Chapter 2 Speth – Chapter 2
October 18	Energy: Carbon-Based Industry & Society (and Climate Science Communities revisited) <i>Film (excerpts): Oil on Ice (2004) and an Atlantic-Richfield video</i>	Houghton – pp. 115-124 & pp. 135-142 Leggett – Chapter 3 Michaels (2004) (on ERes) Speth – part of Chapter 6 → pp. 119-131 <i>Written Assignment #2 posted to website</i>
October 20	Energy: Carbon-Based Society, part II: The Role of the Media <i>Film: Turning Down the Heat – The New Energy Revolution (1999)</i>	Gelbspan – Chapter 4 Leggett – Chapters 4 & 5 Speth – part of Chapter 6 → pp. 131-139
October 25	Energy Alternatives <i>Guest lecture: Ignacio Fernandez, doctoral student, Environmental Studies, UCSC</i>	Houghton – Chapter 11 Speth – Chapter 8 Hawkin, Lovins & Lovins (1999) (on ERes) Written Assignment #2 due in class
October 27	MIDTERM EXAM	--

Date	Topic	Readings/Assignments (to be completed before class)
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Component III: Climate Change Impacts

November 1	Introduction to Various Impacts; Mitigation and Adaptation <i>Film: One Degree Factor (2005)</i>	Houghton – pp. 143-145 & pp. 187-190 Gelbspan – snapshot #2 (pp. 33-36) Leggett – Chapter 6 Speth – part of Chapter 3 → pp. 55-72
November 3	Biodiversity and Ecosystems <i>Guest speaker:</i> Alden Griffith, doctoral student, Environmental Studies, UCSC	Houghton – pp. 170-176 McCarthy et. al (2001) – pp. 1-8 (on ERes) Leggett – Chapter 7
November 8	Extreme Events <i>Film: The Sizzling Planet (2000)</i>	Houghton – pp. 179-184 Gelbspan – snapshot #4 (pp. 87-92) Leggett – Chapters 8 & 9
November 10	Water – Freshwater and Marine Systems <i>Guest speaker:</i> Dr. Michael Loik, professor, Environmental Studies, UCSC	Houghton – pp. 145-164 Gelbspan – snapshot #7 (pp.171-174) Leggett – Chapter 10 <i>Written Assignment #3 posted to website</i>
November 15	Human Health <i>Film: Rising Waters (2000)</i>	Houghton – pp. 176-178 McCarthy et. al (2001) – pp.12-17 (on ERes) Gelbspan – Chapter 5; snapshot #5 (pp. 119-126)
November 17	Agriculture/Food <i>Guest speaker:</i> Holly Alpert, doctoral student, Environmental Studies, UCSC	Houghton – pp. 164-169 McCarthy et. al (2001) – pp. 9-12 (on ERes) Leggett – Chapter 11 Gelbspan – snapshot #6 (pp. 147-151) Written Assignment #3 due in class

Component IV: Climate Change Policy and the Public

November 22	International Environmental Agreements and Policy I: FCCC/Kyoto Protocol	Houghton – pp. 225-231 Gelbspan – Chapter 6 Speth – Chapters 4 & 7
November 24	<i>Holiday - Thanksgiving</i>	---
November 29	International Environmental Agreements and Policy II: FCCC/Kyoto Protocol	Houghton – Chapter 10 Gelbspan – Chapter 7 Speth – Chapter 5
December 1	Domestic Policy and Grassroots Social Movements; Review <i>Guest Speaker:</i> City of Santa Cruz Mayor Mike Rotkin	Leggett – epilogue Gelbspan – Chapter 8 Speth – afterward; resources for citizen action
December 6	<i>FINAL EXAM</i>	7:30 – 10:30 PM!; Oakes 105 (same room)