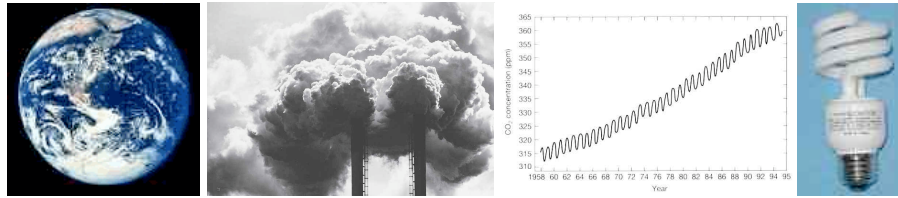


Introduction to Environmental Studies: Climate Change

ES102
Wellesley College
Spring 2009



Course Description & Goals

This course offers an interdisciplinary introduction to environmental studies, with a focus on climate change. It poses questions such as these: What is the state of climate change research? How do we know the scientists are not wrong? Why has the scientific debate over climate change been so political? How has the mass media shaped the debate over global warming? What policy strategies and technologies can mitigate climate change? Can individual efforts make a difference? What are the ethical implications of climate change, as relevant to the relationship between rich and poor countries and future generations of humans?

In exploring such questions, this course will consider major concepts important to environmental studies: the state of scientific research regarding environmental issues, the role of science, politics, and economics in environmental decision making, and the importance of history, ethics and justice in approaching environmental issues. The central aim of the course is to help students begin to develop the interdisciplinary analytical skills necessary to pose questions, investigate problems, and develop strategies that will help us address our relationship to the environment.

Course Meetings

This course meets twice a week, Tuesdays and Fridays, from 9:50am to 11:00am.

Contacting me...

Jay Turner, jturner@wellesley.edu, Pendleton Hall East 133, office – ext. 2820, home – 508-655-1832 (before 9pm). I am more than happy to work with you outside of class. I am often in my office, so please feel free to stop in if the door is open, after class, during my office hours (Wednesday 11am-12:20pm), or make an appointment to see me in advance.

Readings

Many of the course readings will be available through e-reserves on FirstClass. In addition, two books for the course are recommended and available at the bookstore. Copies of these books will also be available on reserve at the library.

Dimento and Doughman, *Climate change: What it means for us, our children, and grandchildren* (MIT Press, 2007).

Mann and Kump, *Dire Predictions: Understanding Global Warming* (DK, 2008).

Course Requirements

Participation (10%). Student participation, in-class discussions, and small-group work are all an important part of the class.

Assignments (40%). The goal of this course is to help you develop your skills in posing questions, analyzing data, and considering environmental issues and their consequences. As a result, much of the work during the term will be organized into eight assignments aimed at those goals. Note, assignments #4, #6, and #8 are group assignments.

Mid-Term (20%). An in-class mid-term will be given on Tu, 3/10.

Final Exam (30%). A cumulative final exam will be available during exam period.

Late Work

Late work will immediately be penalized 1/3 a letter grade, and 1/3 a letter grade for every additional day. I realize that circumstances may arise which make meeting a due date difficult. If this is the case, please discuss this with me in advance. If you are judicious in requesting extensions, I'll be reasonable in granting them.

Course Schedule

Unit 1: Introduction

Tu 2/3 What can climate change teach us about environmental studies (and vice versa)?

Th 2/5 *Please take the 10-minute survey available via First Class by 11.59pm.*

Fr 2/6 Environmental studies and the liberal arts.

The role of science in environmental studies and climate change.

- Oreskes, "The Scientific Consensus on Climate Change," *Climate Change*, chapter 4

Unit 2: A Primer on Climate Change Science and Why It Is So Controversial

Tu 2/10 Science 1: Climate Change Basics

- Mann and Kump, *Dire Predictions*, Introduction and Part 1

- Optional: *An Inconvenient Truth* (2006) (available on e-reserves)

Fr 2/13 Science 2: Climate Change Projections

- Mann and Kump, *Dire Predictions*, Part 2

- Tu 2/17 Science 3: The Impacts of Climate Change
- Mann and Kump, *Dire Predictions*, Part 3
- Fr, 2/20 Wrinkles and Uncertainties in Climate Change Science
Note, before doing these readings, please see FirstClass for more specific instructions.
- When did anthropogenic climate change begin?*
- Review Ruddiman, "How did humans first alter global climate?" *Scientific American* (2005), 46-53*
- Group A: *Could the climate begin getting cooler over the next decade?*
- Revkin, "In a New Climate Model, Short-term Cooling in a Warmer World" *New York Times* (2008)*
- Clover, "Global warming may 'stop', scientists predict" *London Telegraph* (2008).*
- Keenlyside, "Advancing decadal-scale climate prediction in the North Atlantic sector," *Nature* (2008), 84-88* (Note, read the abstract.)
- Group B: *Does global warming effect hurricanes?*
- Thomson, "Hurricanes growing fiercer with global warming," *MIT News Office* (2005).*
- Revkin, "Hurricane Expert Reassesses Link to Warming," *Dot Earth, New York Times* (2008).*
- Emanuel, "Increasing destructiveness of tropical cyclones over the past 30 years," *Nature* (2005), 686-688* (Note, read the abstract.)
- Emanuel, et al., "Hurricanes and global warming: results from downscaling IPCC AR4 simulations," *Bulletin American Meteorological Society* (2008). (Note, read abstract.)*
- Tu 2/24 Discuss Assignment #1
Assignment #1 due in class.
- Why Environmental Science Becomes Politicized
- Pielke Jr., "Policy, Politics, and Perspective," *Nature* (2002)*
- Luntz, "Winning the global warming debate" (2002)*
- Optional: Union of Concerned Scientists, "Smoke, Mirrors, and Hot Air" (2007)*
- Fr 2/27 In Class Documentary: *The Great Global Warming Swindle* (2008)
Note, Jay is away at American Society for Environmental History conference from 2/25 to 2/29.
- Tu 3/3 The Role of the Media in Amplifying Scientific (Un)certainity
- Revkin, "Climate change as news," *Climate Change*, chapter 6
- Additional readings, to be announced.

Fr 3/6 Discuss Assignment #2
Assignment #2 due in class.

Addressing Scientific Uncertainty in Decisionmaking

- DeSombre, "Precautionary principle" in *The Global Environment and World Politics* (2007)*
- O'Neill and Oppenheimer, "Dangerous Climate Impacts and the Kyoto Protocol," *Science* (2002).*

Tu 3/10 In-Class Mid-Term Exam

Unit 3: Who and What Deserves Moral Consideration? Environmental Ethics

Fr 3/13 A Framework for Addressing Climate Change
- DiMento and Doughman, "Climate Change: How the World is Responding," *Climate Change*, chapter 5.

Carbon Footprints: A Quick Introduction

Tu 3/17 A Primer on Environmental Ethics
- Leopold, "The Land Ethic" from *A Sand County Almanac* (1947).*

Th 3/19 *Assignment #3 due by 11.59pm to First Class drop box.*

Fr 3/20 Discuss Assignment #3

Mapping Ethical Concerns onto Policy Decisions

- Singer, "One atmosphere" in *One World* (2004)*
- Barnett and Adger, "Climate dangers and atoll countries," *Climatic Change* (2003)*

Spring Break

Unit 4: Tools from Politics, Economics, and Policy for Making Decisions

Tu 3/31 What Difference Would it Make? Introducing Back-of-the-Envelope Calculations

Climate Change as a Tragedy of the Commons

- Hardin, "The Tragedy of the Commons," *Science* (1962).*

Fr 4/3 A Primer on Environmental Economics and Cost-Benefit Analysis
- Harris and Roach, "The Economics of Global Climate Change" (2007), 2, 11-20*

In-class work session: back-of-the-envelope calculations.

- Tu 4/7 Environmental Economics: The Debate over the Stern Report
 - Stern, "Summary of Conclusions" (2006), vi-ix.*
 - Nordhaus, "Critical assumptions in the Stern Review on Climate Change," *Science* (2007), 201-202*
 - Broome, "The Ethics of Climate Change," *Scientific American* (2008), 97-102*
- Th 4/9 *Assignment #4 due by 11.59pm to First Class drop box.*
- Fr 4/10 Discuss Assignment #4.
- Regulatory Policy: Command and Control versus Market-Based Policies
 - Portney, "Market-Based Approaches to Environmental Policy," (2004), 15-18.*
 - Godoy, "CAFE Standards: Gas-Sipping Etiquette for Cars," *NPR* (2007).*
 - Fairley, "The New CAFE Standards," *MIT Technology Review* (2008).*
- Tu 4/14 Regulatory Policy (Cap and Trade; Taxes)
 - Harris and Roach, "The Economics of Global Climate Change" (2007), 21-29*
- Fr 4/17 Regulatory Policy (Other Market-Based Strategies)
 - "The United States Experience with Economic Incentive for Protecting the Environment," U.S. Environmental Protection Agency (2001), i-xi.*
- Tu 4/21 No Class — Monday Schedule
- Th 4/23 *Assignment #5 due by 11.59pm to First Class drop box.*
- Unit 5: Looking Forward: Sustainable Development and Climate Change**
- Fr 4/24 Introducing Carbon Wedges
 - Socolow and Pacala, "A plan to keep carbon in check," *Scientific American* (2006)*
- Tu 4/28 Toward Sustainable Development
 - Bruntland, "Towards Sustainable Development," *Our Common Future* (1987)*
 Group Carbon Wedge Workshop I: Detailing the Wedges
- We 4/29 *Assignment #6 due by 11.59pm to First Class drop box.*
- Fr 5/1 Group Carbon Wedge Workshop II: Scoping a Wedge Portfolio
 - Read all student profiles of carbon wedges from Assignment #6 (available by 9am on We, 4/29)
- Tu 5/5 Adaptation and Geoengineering
 - Pielke, et al., "Lifting the taboo on adaptation," *Nature* (2007)*
 - Keith, "A surprising idea for 'solving' climate change," *TED Talks* (2007)*

- We 5/6 *Draft Assignment #7 due to First Class by 8pm.*
- Fr 5/8 **Group Carbon Wedge Workshop III: Justifying a Portfolio**
Read and comment on each of your group members draft of Assignment #7.
- Tu 5/12 **Wedge Presentations and Final Discussion**
- We 5/13 *Assignments #7 (individual) and #8 (group) due by 11.59pm to First Class drop box.*