

## Environmental Analysis and Problem Solving (ENVI 355)

Macalester College, Fall 2005

Tues/Thurs 10:10-11:40am OLRI Room 270

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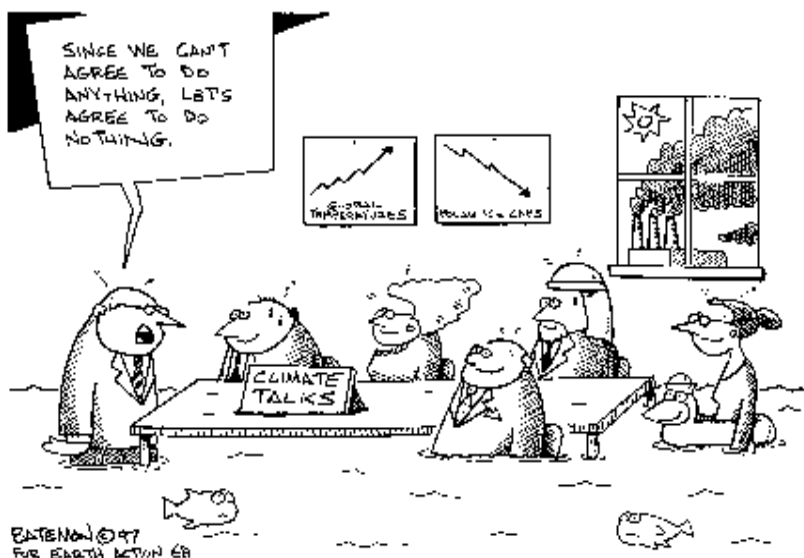
**Course Preceptor:** Kat Sachs ([ksachs@macalester.edu](mailto:ksachs@macalester.edu))

### Course Description

Environmental Analysis and Problem Solving is a required course for Environmental Studies majors. The course introduces students to the perspectives, methodologies, tools, and concepts that are at the heart of Environmental Studies and provides opportunities for applying these tools to real environmental problems.

Taken at roughly the half way mark of a student's Macalester experience, the course is designed to provide opportunities to apply knowledge and skills already acquired, to strengthen the understanding of Environmental Studies and its role in the liberal arts curriculum, and to facilitate a look ahead at the final two years of undergraduate education and beyond.

This year's seminar will focus on the issue of *global climate change*. Through our examination of this complex environmental theme, we will address a range of interdisciplinary perspectives toward both defining what an environmental problem is and framing the best avenues for mitigation.



*In the process of studying climate change, the main learning goals for this course are:*

- Gain interdisciplinary analytical tools for understanding the confluence of ecological, cultural, social and political perspectives
- Improve skills at expert reading, rhetorical writing,

research, team work and oral presentation

## Student Expectations and Modes of Evaluation

You are expected:

- To come on-time to class every session
- Be respectful to your instructor and class peers
- Regularly check our class website for updates and assignments

Grades for the course will be based on performance in the following areas:

### **1) Class attendance and participation (10 points)**

Attendance will be taken at every class meeting. You are expected to come to class prepared to contribute to our discussions. Given that expectation, I will feel it appropriate to call on any individuals in class to answer questions.

### **2) Reading reflections (10 points)**

A 250 word reflection piece should be submitted through the course website prior to each class meeting. These reflections should reference the assigned readings. The point is not to summarize the texts, but instead to attempt to critically think with and synthesize the material. Please see the description of this assignment on the course website.

### **3) Class presentation and fact sheet (20 points)**

This assignment is related to the mock Arctic Conference on **Oct 25th**. This presentation will be prepared by pairs of people representing a country or organization. Assignment details will be posted to the course website. Your fact sheet must be uploaded to the website by 5pm **October 24<sup>th</sup>**.

### **4) Op-ed on climate change (20 points)**

You are expected to prepare and submit an op-ed piece to a major newspaper commenting on any aspect of climate change. The op-ed should be roughly 750 words long and must advance an argument and/or position. The op-eds will be peer reviewed prior to submission. You will be assigned a peer group through the MAX Center. The final piece is due on **Nov. 15<sup>th</sup>**.

### **5) Final Paper: Energy Sector Study (10 points for Work Plan; 30 points for Final paper)**

This assignment requires you to choose a topic within the energy sector and to examine a particular program being sponsored by a corporation, NGO, national policy or international body. The work plan should include a summary of the topic, an outline of the paper, a bibliography and proposed work schedule by week. **The Work Plan is due on Nov. 29<sup>th</sup>**. The final report should be 10 pages long and properly cited. **The final paper is due on Dec. 19<sup>th</sup>**.

*If you choose to submit an assignment late, you will be graded down one full step for each day past the deadline. For example, an assignment handed in one day late will begin with a B+; two days late a C+. Late reading reflections will not be accepted.*

## **Academic Integrity**

It is assumed that all members of the class will act with academic integrity and will not engage in behavior such as plagiarism, academic dishonesty, misrepresentation, or cheating. There is a zero tolerance policy for plagiarism. If you are caught, you will receive a failing grade on that assignment. Please see the college's policy on academic honesty if you need clarification.

## ***Required Books and Readings***

Please purchase the following books:

- Arctic Climate Impact Assessment. 2004. *Impacts of a Warming Arctic*. Cambridge: Cambridge University Press.
- C. Wohlforth. 2004. *The Whale and the Supercomputer: On the Northern Front of Climate Change*. New York: North Point Press.
- J. J. Berger. 1997. *Charging Ahead*. New York: Henry Holt and Co.

All other readings will be available through electronic reserves. We will also be reading significant sections of the following titles. All of the below books will be available for purchase at the bookstore or available through online booksellers.

- C. Miller and P. Edwards (eds). 2001. *Changing the Atmosphere: Expert Knowledge and Environmental Governance*. Cambridge: MIT Press.
- R. T. Watson. 2001. *Climate Change 2001: Synthesis Report*. The IPCC Report. Cambridge: Cambridge University Press.
- S. Weart. 2003. *The Discovery of Global Warming*. Cambridge: Harvard Univ Press.
- B. G. Rabe. 2004. *Statehouse and Greenhouse: The Emerging Politics of American Climate Change Policy*. Washington, DC: Brookings Inst. Press.
- W. J. Burroughs. 2001. *Climate Change: A Multidisciplinary Approach*. Cambridge: Cambridge University Press.

## **Summary of Topics and Readings**

**Sept 8: Course introduction**

### **Part I: Defining a Global Environmental Problem**

**Sept 13: What is the basis of Environmental Studies?**

- M. Soule and D. Press. 1998. "What is Environmental Studies?," *Bioscience* Vol 48: 397-405.
- M. F. Maniates and J. C. Whissel. 2000. "Environmental studies: the sky is not falling," *Bioscience* 50 (6): 509-17.

### **Sept 15: What is global about the environment?**

- Taylor, P. 1997. "How do we know we have global environmental problems? Undifferentiated science-politics and its potential reconstruction" in P. Taylor, S. Halfon and P. Edwards (eds) *Changing Life: Genomes-Ecologies-Bodies-Commodities*. Minneapolis: University of Minnesota Press. Pp. 149-174.
- G. Speth. 2004. "Prologue" and "Chapter 1: Environmental Challenges Go Global," in *Red Sky at Dawn*. New Haven: Yale Univ. Press. Pp. 1-22.

### **Sept 20: Seeing the Earth**

- D. Cosgrove. 1994. "Contested Global Visions: *One-World, Whole-Earth*, and the Apollo Space Photographs," *Annals of the Association of American Geographers*. Vol 84 (2): 270-294.
- S. Jasanoff. 2001. "Image and Imagination: The Formation of Global Environmental Consciousness," in C. Miller and P. Edwards (eds). *Changing the Atmosphere: Expert Knowledge and Environmental Governance*. Cambridge: MIT Press. Pp. 309-338.

## **Part II: Is the Climate Changing?**

### **Sept 22: Climate or Weather**

- S. Weart. 2003. "Chapter One: How Could Climate Change" in *The Discovery of Global Warming*. Cambridge: Harvard Univ Press. Pp. 1-19.
- W. J. Burroughs. 2001. "Chapter 1: Introduction" and "Chapter 8: The Causes of Climate Change" in *Climate Change: A Multidisciplinary Perspective*. Cambridge: Cambridge University Press. Pp 1- 8; 201-235.

### **Sept 27: Modeling, Measuring and Predicting**

- W. J. Burroughs. 2001. "Chapter 6: The Measurement of Climate Change" in *Climate Change: A Multidisciplinary Perspective*. Cambridge: Cambridge University Press.
- P. Edwards. 2001. "Chapter 2: Representing the global atmosphere: Computers, models, data and knowledge about climate change," in C. Miller and P. Edwards (eds) *Changing the Atmosphere: Expert Knowledge and Environmental Governance*. Cambridge: MIT Press. Pp. 31-66.
- 2005. "Act Now," *New Scientist* 12 February 2005. Pp. 8-11.

### **Sept 29: Understanding the Impacts of Climate Change**

- R. C. Somerville. 1996. "Chapter 5: Reacting to Climate Change" in *The Forgiving Air*. Berkeley: UC Press. Pp. 99-113.
- S. Weart. 2003. "Chapter 8: The Discovery Confirmed," in *The Discovery of Global Warming*. Cambridge: Harvard Univ Press. Pp. 160-192.
- R. T. Watson. 2001. "Summary for Policy Makers," in *Climate Change 2001: Synthesis Report* (The IPCC Report). Cambridge: Cambridge University Press. Pp. 2-34

### **Oct 4: The Authority of Science: Credibility and Climate Skeptics**

- F. Pearce. 2005. "Menace or Myth?" *New Scientist* 12 February 2005. Pp. 38-43.

- P. J. Michaels and R. C. Balling. 2002. "Chapter 2: Global Warming Goes Global," in *The Satanic Gases*. Washington, DC: Cato Institute. Pp. 11-20.
- N. Oreskes. 2004. "The Scientific Consensus on Climate Change," *Science*. Vol. 306: 1686.
- C. Mooney. 2005. "The Greatest Hoax," in *The Republican War on Science*. NY: Basic Books.

## Oct 6: Representing Peoples and Numbers: Whose Scientific Knowledge Counts

Guest: Alessandra Vitrella, Carleton College

- C. Wohlforth. 2004. *The Whale and the Supercomputer: On the Northern Front of Climate Change*. New York: North Point Press. Concentrate of the following sections: "Preface"; "Chapter 1: The Whale"; "Chapter 3: The Snow"; "Chapter 4: The Lab"; "Chapter 7: Signs".

Introduction to the Arctic exercise. Groups to be assigned.

## Part III. The Scales of Governmental Response

### Oct 11: The Framework Convention for Climate Change and the Kyoto Protocol

- UNFCCC. 2003. *Caring for the Climate*. Bonn: UNFCCC. Pp. 1-28.
- J. Leggett. 2001. "Chapter 11: The Day of the Atmosphere," in *The Carbon War: Global Warming and the End of the Oil Era*. New York: Routledge Press. Pp. 290-321.
- D. Austin and P. Faeth. 1999. *How Much Sustainable Development can we expect from the CDM?* Washington DC: WRI Report. Pp.1-12.

### Oct 13: Missing masses

- C. Fogel. 2004. "The Local, the Global and the Kyoto Protocol," in S. Jasanoff and M. Martello (eds). *Earthly Politics*. Cambridge: MIT Press. Pp. 103-125.
- A. Agarwal and S. Narain. 1991. *Global Warming in an Unequal World: A Case of Environmental Colonialism*. New Delhi: Centre for Science and Environment.
- D. Jamieson. 2001. "Chapter 9: Climate Change and Global Environmental Justice," in C. Miller and P. Edwards (eds) *Changing the Atmosphere: Expert Knowledge and Environmental Governance*. Cambridge: MIT Press. Pp. 287-308.
- Villagrasa, D. 2002. "Kyoto Protocol Negotiations: Reflecting on the role of women," in R. Masika (ed) *Gender, Development and Climate Change*. Oxford: Oxfam Press. Pp. 40-44.

## Op-ed Presentation by Kat

### Oct 18: Kyoto and Beyond

#### Udall Foundation visit

- F. Singer. 2004. "The Kyoto Protocol: A Post-Mortem," *The New Atlantis*. Winter: 66-73.
- B. Rabe. 2004. "Chapter 5: Looking Ahead" in *Statehouse and Greenhouse: The Emerging Politics of American Climate Change Policy*. Washington, DC: Brookings Inst. Press. Pp. 146-180.



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- Pew Center on Climate Change. 2004. *Learning from State Action on Climate Change*. In Brief. No. 8.
- Visit the following websites to learn the latest post Kyoto approaches:  
<http://www.seattle.gov/mayor/climate/default.htm#seattle>

#### **Oct 20: In-class screening of Baked Alaska**

- M. Sturm, D. Perovich and M. Serreze. 2003. "Meltdown in the North," *Scientific American*. October. Pp. 60-67.

**Please focus your reading reflection on this article, the Wohlforth book and the film. Submit this after class to me by e-mail.**

#### **Oct 25: In Class -- Mock Arctic Panel**

- Arctic Climate Impact Assessment. 2004. *Impacts of a Warming Arctic*. Cambridge University Press.

**Fact Sheets due by 5pm Oct 24<sup>th</sup>.**

### **Part IV. Global Warming or Climate Change: The Issue in the Popular Press**

#### **Nov 1: *The Day After Tomorrow***

- View the *The Day After Tomorrow* in the Media Lab.
- B. McKibben. 2005. "Imagine that: What the warming world needs now is art, sweet art," *Grist Magazine*. 21 April 2005. Pp 1-4.

#### **Nov 3: Fiction or Non-fiction?**

- M. Crichton. 2004. *State of Fear*. NY: Harper Collins. Selections TBA.
- B. Barcott. 2005. "Not So Hot," *NY Times Review*. Jan 30, 2005.
- M. Kakutani. 2004. "Beware! Tree Huggers Plot Evil to Save World," *NY Times Review*. Dec 13, 2004.
- J. Leggett. 2005. "Dangerous Fiction," *New Scientist*. 5 March 2005. Pp 50-52.

#### **Nov 8: The Popular Scientific Press**

- J. Motavalli (ed). 2004. "Introduction"; "Chapter 1: China: The Cost of Coal"; "Chapter 5: Asia The Clouds Got in the Way"; "Chapter 8: Australia, Florida and Fiji" in *Feeling the Heat: Dispatches from the Frontlines of Climate Change*. New York: Routledge. Pp 1-8; 11-24; 79-92; 127-140.
- B. McKibben. 2005. "Titling at Windmills," *NY Times*. February 16, 2005. On-line version.

#### **Nov 10: The New Yorker Series**

- E. Kolbert. 2004. "The Climate of Man," *The New Yorker*. Issues April 25, 2005, May 2, 2005 and May 9, 2005.

#### **Nov 15: The Internet: Who Controls the Truth – Guest Aaron Doering**

- R. Gelbspan. 1997. "The battle for the control of reality" in *The Heat is On*. Reading, MA: Addison-Wesley. Pp. 33-61.
- Visit [www.polarhusky.com](http://www.polarhusky.com)
- Please select three additional websites to analyse. Bring the URL's to class.

**In your reflection pieces, comment on how the web delivers climate change information to the public. Which websites are more or less effective at reaching which audiences?**

## **\*\* Final Op-ed assignment Due**

### **Part V. Energy Futures**

#### **Nov 17: Energy Trends**

- Energy Future Coalition. 2002. *Charting a New Energy Future*. Pp1-41.
- J. J. Berger. 1997. "Introduction" and "Part I: Chapters 1-3" in *Charging Ahead*. New York: Henry Holt and Co. Pp. xiii-20.

#### **Nov 22: Nuclear Politics**

- NEA. *Nuclear Power and Climate Change*. Pp. 1-28.
- NIRS. 2005. "Nuclear Power: No Solution to Climate Change," *Nuclear Monitor*. February. Pp. 1-24.
- A. Lovins and H. Lovins. "The Nuclear Option Revisited". Snowmass CO: Rocky Mountain Institute. Pp 1-2.

#### **Nov 29: Going Solar**

- J. J. Berger. 1997. "Part II: Shining Power: Chapters 4-12," in *Charging Ahead*. New York: Henry Holt and Co. Pp. 21-134.

#### **\* Work Plan Due**

#### **Dec 1: Tilting at Windmills**

##### **Visit from Rolf Miller**

- J. J. Berger. 1997. "Part III: Whirling Power Chapters 13-17," in *Charging Ahead*. New York: Henry Holt and Co. Pp. 137-187.
- R. Phadke. 2005. "Steel Forests and Smoke Stacks". Article in progress.
- M. Losure. 2003. "Urban turbine comes to St.Paul" Minnesota Public Radio. Aired on April 23, 2003. Read the transcript. Pp. 1-2.



#### **Dec 6: Energy Efficiency and the Built Environment**

- J. J. Berger. 1997. "Chpt 21: Efficiency The Sleeping Giant" and "Chapter 22: Miniaturizing Energy Demands," in *Charging Ahead*. New York: Henry Holt and Co. Pp. 243-270.
- 2004. "Bank of American and the Durst Organization Break Ground" Bank of America Press Release. August 2, 2004. Pp 1-5.

#### **Dec 8: Transportation and Auto Standards – Guest Chris Wells**

- J. J. Berger. 1997. "Chpt 23: Electric Vehciles" and "Chpt 24: Hypercars," in *Charging Ahead*.

New York: Henry Holt and Co. Pp. 271-312.

- J. Doyle. 2000. "Chapter 20: "Slow Dance to Supercar," in *Taken For A Ride*. New York: Tides Center. Pp. 421-429.

**Dec 13: The Minnesota Climate Change Plan – Guest Michael Noble**

- Minnesota Pollution Control Agency. 2003. *Climate Change Action Plan*. Pp 1-14.
- Minnesotan's for an Energy Efficient Economy (ME3). 2002. "Playing with fire: Climate change in Minnesota. Saint Paul, MN. Pp 1-24.

**Dec 15: Sharing Projects and Summing Up**

Each student to give a 5 minute presentation about their research paper.

**FINAL Papers Due: Monday December 19, 2005 (Early submissions accepted)**