

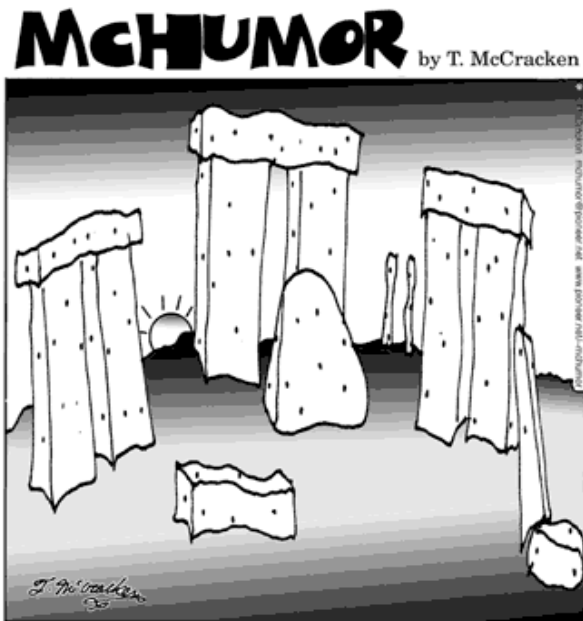
Citizen Science: Environment, Technology & Democracy (ENVI294/POLI294)
Macalester College, Spring 2006
Tues/Thurs 2:45– 4:15pm OLIN RICE 270

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Access course webpage as ENVI294

Course Description

Rachel Carson's 1962 publication *Silent Spring* harkened the beginning of the environmental citizen science movement in America. This knowledge revolution suggested that everyday people had an important role to play in deciding, observing and contesting how science and technology was being developed and implemented for the good of humanity and the natural world. In our present day, the Silent Spring Institute based in Cape Cod continues to push Carson's agenda forward on important enviro-scientific controversies like the fight against breast cancer.



Styrofoam Henge, where modern technology clashes with an ancient civilization.

Taking our cue from Carson, this course examines the role of citizens in environmental decision-making. We will focus on environmental controversies as important sites for examining how information, science and governance come together. Through our engagement with a range of environmental controversies we will think through some core concepts: risk, uncertainty, expertise, transparency, credibility, trust, democracy and citizenship.

Students will also be introduced to the field of science and technology studies (STS). STS scholars have been at the forefront of thinking about how citizens are involved in the production and deployment of science and technology. STS frameworks will help us evaluate how we understand and construct avenues for public engagement on these fundamental societal questions.

Student Evaluation

Students will be evaluated on the basis of:

1) Attendance & participation (20%)

You are expected to attend every class. If you must be absent due to illness or other extenuating circumstance, contact me as soon as possible. More than one absence may result in a reduction in your participation grade. If you are late to class regularly, this may be counted as an absence. You are responsible for checking in with your peers for missed material. Your participation grade will be based on thoughtful, respectful, and productive engagement in class discussions. Your creativity is always encouraged.

2) Submission of reading reflections (20%)

Reading reflections are intended to encourage you to synthesize reading material and begin articulating your personal positions on these complicated issues. Your reflections are **due by 12pm** the day of class. Your pieces should be approximately 350-500 words in length, about two to three paragraphs. They must be submitted through the course website. **DO NOT** e-mail reflections to me. Late reading reflections will not be accepted. These will be graded on a check minus (1 pt), check (2 pts), or check plus (3 pts) basis for each submission. Occasionally, I will respond directly to your submission on Moodle. Most times, I will refer to issues raised in your reflections in class.

3) Co-leading class discussion (20%)

You will be asked to co-lead class twice during the semester. You and a partner will be responsible for leading a WORKSHOP and a FILM discussion. More details about the expectations for each of these assignments will follow. You are not expected to turn in a reflection when you are leading class.

4) Controversy Study (Total 40%)

You will choose a controversy, not limited to an environmental focus, to follow throughout the semester. See the final page of this syllabus for some topic examples. This research project will be evaluated in three stages throughout the semester. You will be asked to present your initial idea and outline, a working draft and a final polished project. The format for the assignment will be a web page. Throughout the semester we will be working on basic web page design and content. More details about the project will follow.

If you submit any of the above assignments 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+.

Final Grade Scale: A (94-100); A- (90-93); B+ (87-89); B (83-86); B- (80-82)

Similar ranges for C grades (70-79) and D grades (60-69); Below 60 is a failing grade.

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. Please refer to the college's policy on academic honesty.

Summary of Topics and Readings

** There are no required books for this class. All readings are available on reserve.

Tues Jan 24: Course Introduction

Are We Playing God?

Part I: Introduction to Science, Technology and Politics

Thurs Jan 26: Normal and post-normal environmental science

- J. Lubchenco. 1998. "Entering the Century of the Environment: A New Social Contract for Science," *Science* Vol. 279: 491-496.

- D. Sarewitz. 2004. "How science makes environmental controversies worse," in *Environmental Science and Policy*. Vol 7: 385-403.

Tues Jan 31: Why trust science?

- C. D. Connor. 2005. "Chapter One: What Science, What History, What People," in *A People's History of Science*. NY: Nations Books. Pp.1-25.

- S. Bocking. 2004. "Chapter 2: The Uncertain Authority of Science" in *Nature's Experts*. Piscataway, NJ: Rutgers Press. Pp. 16-44. (This is a CLIC-NET E-book)

Thurs Feb 2: Risk and Uncertainties

- S. Bocking. 2004. "Chapter 6: "Science in a Risky World" in *Nature's Experts*. Piscataway, NJ: Rutgers Press. Pp. 135-160. (This is a CLIC-NET E-book)

- H. Collins and T. Pinch. 1998. "The Science of the lambs" *The Golem At Large*. NY: Cambridge Univ Press. Pp. 113-125.

Tues Feb 7: Technology and Politics

- L. Mumford. 1964. "Authoritarian and Democratic Technics," *Technology & Culture* Vol 5: 1-8.

- L. Winner. 1986. "Do Artifacts Have Politics," *The Whale and the Reactor*. Chicago: Univ of Chicago Press. Pp. 19-39.

Thurs Feb 9: Citizen Science

- S. Bocking. 2004. "Chapter 8: Democratic Environmental Science" in *Nature's Experts*. Piscataway, NJ: Rutgers Press. Pp. 199-225. (This is a CLIC-NET E-book)

- R. Schlove. 1994. "Chapter 3: Strong Democracy and Technology," in *Technology and Democracy*. Guilford Press. Pp. 25-57.

- A. Irwin. 1995. "Chapter 6: Science Shops and Successful Experiments" in *Citizen Science*. London: Routledge Press.

Part II: Case Study Modules

Topic A: Environmental health and justice

Tues Feb 14: Lecture: Are We a Toxic Nation?

- A. Szasz. 1994. Chapters 2-4 in *Ecopolitism: Toxic Waste and the Movement for Env Justice*. Minn: Univ of MN Press. Pp. 11-99.

Thurs Feb 16: Student led workshop
Pollution and health in Twin Cities: A Look at the TRI

Tues Feb 21: Student led film discussion
A Civil Action or *Erin Brokovich*

Thurs Feb 23: Research Day 1
Web Page Design Workshop

Reminder: Feb 24th 7pm Keynote Address for EJ Conference – David Pellow

Topic B: Biotechnology

Tues Feb 28: Lecture: Food, Genes and Power
- R. Schurman and D. Kelso (eds). 2003. "Introduction" and "The Migration of Salmon"
Engineering Trouble: Biotechnology and its Discontents. Berkeley: UC Press. Pp.1-23; 84-110.

Thurs March 2: Student led workshop
Golden Rice and Food Security

Tues March 7: Student led film discussion
Soylent Green

Thurs March 9: CLASS CANCELED

March 11-19 Spring break!!!!

Tues March 21: RESEARCH DAY 2
Send around one page summary about your topic and get feedback in class

Topic C: Regulating the Power Industry

Thurs March 23: Lecture: Accidents and Incidents
- C. Perrow. 1984. Chapters 1-3. *Normal Accidents: Living with High Risk Technology*. NY: Basic Books. Pp. 15-100. *Note: Skim chapters one and two – focus on three.*

Tues March 28: Student led workshop
The Science and Politics of Yucca Mountain

Thurs March 30: Student led film discussion
The China Syndrome

Tues April 4: RESEARCH DAY 3
Share an outline of your paper and begin connecting to class readings

Topic D: Endangered species: Life in the Balance

Thurs April 6: Lecture: Whose Knowledge and Power

- C. Thompson. 2004. "Chapter 4: Co-producing CITES and the African Elephant" in S. Jasanoff (ed) *States of knowledge: the co-production of science and social order*. NY: Routledge.
- S. Cole. 1997. "Do Andriods Pulverize Tiger Bones," in P. Taylor et al. (Eds) *Changing Life: Genomes, Ecologies, Bodies and Commodities*. Minn: Univ of MN Press. Pp. 175-195.

Tues April 11: Student led workshop

The International Whaling Commission

Thurs April 13: Student led film discussion

Gorillas in the Mist

Tues April 18: RESEARCH DAY 4

Share a draft of your paper and discuss your plans for further development

Part III. Civic Epistemology

Thurs April 20: Our Alternatives

Selections to include:

- S. Jasanoff. 2005. *Designs on Nature*. Princeton, NJ: Princeton Univ. Press.
- S. Jasanoff. 2003. "Technologies of Humility: Citizen Participation in Governing Science." *Minerva* Vol 41 (3). Pp. 223-244.
- M. O'Brien. 2002. "Chapter 12: We Know How" in *Making Better Environmental Decisions*. Cambridge: MIT Press. Pp. 171-190.

Tues April 25: Moving Forward

B. McKibben. 2003. "Enough?" and "Is Enough Possible?" in *Enough: Staying Human in an Engineering Age*. NY: Henry Holt and Co. Pp.109-199.

Thurs April 27: Summing up and course evaluations

Tues May 2: Debut your website in class

May 4: Final Project DUE by 5pm by e-mail.

Examples of Potential Controversy Study Topics:

Silicon Breast Gel Implants

Approval of RU 486

Stem cell research

Nanotechnology

Climate change

Atrozime and frogs

DDT Use

Human and Animal Cloning

Wind energy

Cryogenics

Bioprospecting