

Science in Society  
Winter 2008  
2 credits  
Wednesdays, 2:15 pm – 4:05 pm

**Instructor**

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**Introduction**

This seminar introduces some of the philosophical debates that have taken place over American science since World War II: Why is science funded? Who decides? What types of science should be funded? How scientists should fulfill their roles and responsibilities in democratic politics and decision-making?

We hope to generate lively discussions based on assigned readings and informal writing assignments. After establishing foundational knowledge on the social contract for science, we delve into two major case studies—the evolution-intelligent design controversy and global warming. Additional topics include popular representations of science, the relationship between science funding and technological development, and mitigation and adaptation responses to global warming.

This seminar is pitched for all students, not just those in the natural sciences and engineering. Those who are firmly committed to a scientific career are welcome—as are those who are exploring other options! We will meet once a week for two hours to discuss a reading or hear a guest speaker.

**Learning Objectives**

Science exists in a social context—issues that *involve* science are not necessarily *about* science. It is therefore not always obvious how, and if, science and scientific expertise should be used. In the context of the evolution/intelligent-design controversy, we hope to:

- Understand the role of scientists in science literacy.
- Recognize multiple viewpoints through which this controversy can be analyzed.
- Grasp some of the tradeoffs in science education, equity and civic engagement.

At the end of this case study, students will be familiar with the tradeoffs involved in the evolution/intelligent design debate. This point is investigated more deeply in the second major case study on global warming and climate change.

We hope that the two case studies plus the background material allow students to:

- Identify the relevant values that may be a part of science-related controversies.
- Understand three major concepts: the social contract for science, situated or lay expertise, and the subjectivity in problem definition.
- Appreciate the interplay between values and facts involved in science-related decision-making.

To highlight the tradeoffs involved in decision-making, every class I will write two questions on the board: What are your values? And, How much should your opinion count? At the end of the quarter you should be able to answer these questions for yourselves.

Under the major theme, that science exists in a social context, we introduce concepts from the policy sciences. We focus on science and expertise in democratic decision-making: How are decisions made, who gets to do the deciding and what role do experts play? Readings include excerpts from political theory, policy science, philosophy of education, science education and climate science.

### **Course Materials**

The readings will be available on the course website: <http://coursework.stanford.edu> (or just type “coursework” into the address line of the web browser on any Stanford compute). You will need a Stanford University ID to access materials on this site. You will have to sign up for the class on CourseWork by using the “add course” option. Please email me if you have any problems.

### **Responsibilities**

- Reading
  - Every week, you will be assigned anywhere from ~25 to 50 pages to read. The readings are essential to prepare you to engage in class discussions.
  - I will highlight specific sections and ask focus questions that will be the starting point for our discussions. Spend some extra time thinking about how the readings address the issues that I raise.
- Assignments
  - Post a one page response (~250 words) to the readings on Coursework by midnight before class. The response is open-ended unless otherwise specified. You are allowed to be late on one assignment.
  - After each class debate, post a two page (~500 words) response.

In addition to the readings and weekly responses, you will be given time during class to prepare for two class debates.

There are a few weblogs that you should visit regularly during the quarter, and especially when relevant to the class discussions:

- <http://www.climatepolicy.org>: on climate science policy
- <http://www.realclimate.org>: on global warming/climate change, often discussing the technical and scientific aspects.
- <http://sciencepolicy.colorado.edu/prometheus>: science policy and politics, with a focus on climate change and natural disasters

This class is offered only for credit. To pass the class, you must not miss more than one weekly response.

### **Students with Documented Disabilities**

Students who have a disability, which may necessitate an academic accommodation or the use of auxiliary aids and services in a class, must initiate the request with the Student Disability Resource Center (SDRC), located within the Office of Accessible Education (OAE). The SDRC will evaluate the request with required documentation, recommend appropriate accommodation, and prepare a verification letter dated in the current academic term in which the request is being made. Please contact the SDRC as soon as possible; timely notice is needed to arrange for appropriate accommodations.

The SDRC/Office of Accessible Education is located on the first floor of 563 Salvatierra Walk, across from the Haas Center for Community Service and behind the Law School.

(Phone: 723.1066; TTY: 723.1067; FAX: 725.5301)

### **Meeting with Instructor**

I really enjoy talking about the issues we discuss in this course. I am glad to answer any questions you may have about the material in class, other topics in science, technology and society studies, science education, American politics, or any other subject you can think of. Please feel free to set up a time to talk either after class or by email.

<b>Week</b>	<b>Date</b>	<b>Topic</b>	
1	January 9	Introductions and overview; case study: public health	Social contract for science
2	January 16	Social contract for science: goal-setting, autonomy and responsibility; inequality	
3	January 23	Relationship between science funding and technological development; popular representations of science	
4	January 30	Expertise; technocratic decision-making; decline in American civic engagement	
5	February 6	Public science literacy; control of public education; engagement w. science <b>Guest Lecture: Dr. Peter Stone (Political Science)</b>	<b>Case Study:</b> Science literacy, and evolution- intelligent design
6	February 13	Competitiveness-equity tension; education reform; education and economic growth; prepare for class debate	
7	February 20	Class debate: how to resolve the evolution-intelligent design controversy	
8	February 27	Decision making and policy sciences; subjective and objective criteria; values in environmental controversies <b>Guest Lecture: Dr. Mike Mastrandrea (Climate Science)</b>	<b>Case Study:</b> Climate change
9	March 5	Global warming and democracy; adaptation and mitigation; possible dangers of global warming; relevant expertise	
10	March 12	Class debate: how to resolve AGW. Also wrap up discussion on science and values.	
11	March 17	Finals Week. Optional class discussion, topic decided by student vote. Possibilities include politicization of science; the social construction of science; epistemology and philosophy; the enlightenment; science education, or anything else you can think of!	