

Science and the State

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Overview: This graduate seminar explores science, technology and medical policymaking in the United States and internationally. Students will learn about key institutions, debate the role of science in policy, and analyze competing approaches to science policy analysis. The course will proceed in four main parts: (1) an introduction to policy institutions and scientists' experiences in the policy arena; (2) analytical frameworks for science policy; (3) risk and regulation, including case studies of important regulatory disputes; and (4) policymaking in contested areas with significant public/consumer involvement. Readings each week will explore both theoretical approaches and real-world examples from recent policy history. The course will focus primarily on the United States, however some readings and class discussion will examine "American exceptionalism" in light of international treaties and policymaking overseas.

Meets: Mondays, 12:30 – 3:00 PM
493 Logan Hall

Requirements: Students must: (a) attend all classes and participate in discussion; (b) prepare 2 short [2 pp. max] reaction papers to stimulate class discussion and distribute them by 4:30 p.m. the Friday prior to class; and (c) complete a final take-home exam, which will be distributed via email on 30 April at 9:00 a.m. and which is due *without exception* by 9:00 a.m. on 2 May 2007 (either delivered printed or emailed as an electronic file in .doc, .rtf, or .pdf file format). The exam will test familiarity with key topics and issues covered in the readings as well as asking students to apply analytical perspectives developed during the semester.

Grading: The final grade will be based on the above requirements and will be calculated as: (a) = 20%; (b) = 20%; (c) = 60%

Week 1 (8 January) Course overview and discussion of the science policy – science studies nexus

Week 2 (22 January) Institutions of science and policy

- United States Constitution (1787) [available on-line, various sites including: www.usconstitution.net]
 - A. Hunter Dupree, *Science in the Federal Government: A History of Policies and Activities to 1940* (Harvard, 1957; Johns Hopkins, 1986)
 - Preface to the 2nd Edition
 - Chapter 2, “Theory and Action in the Jeffersonian Era”
 - Chapter 16, “The Impact of WWI”
 - Chapter 18, “The Depression and the New Deal”
 - Chapter 19, “Prospect and Retrospect at the Beginning of a New Era”
 - Vannevar Bush, *Science the Endless Frontier. A Report to the President* (USGPO, 1945) [<http://www.nsf.gov/od/lpa/nsf50/vbush1945.htm>]
 - Daniel Kevles, “The National Science Foundation and the Debate over Postwar Research Policy,” *ISIS* 68 (1977): 5-26.
 - Bruce L.R. Smith, *American Science Policy Since World War II* (Brookings, 1991)
 - Chapter 3, “The Post-War Consensus”
 - Dale Lindsay and Ernest Allen, “Medical Research: Past Support, Future Directions,” *Science* 134 (1961): 2017-2024.
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Week 3 (29 January) Scientists in the policy arena

- Alvin Weinberg, “Science and Trans-Science,” *Minerva* 10 (1972): 209-222.
 - Joseph Ben-David, *The Scientists Role in Society* (Prentice-Hall, 1971).
 - Chapter 8, “The Professionalization of Research in the United States”
 - Etel Solingen, “Between Markets and the State: Scientists in Comparative Perspective,” *Comparative Politics* 26 (1993): 31-51.
 - Roger Pielke, “When Scientists Politicize Science,” *Regulation* (2006): 28-34.
 - Chandra Mukerji, *A Fragile Power: Scientists and the State* (Princeton, 1989).
 - Chapter 1, “Scientists as an Elite Labor Force”
 - Chapter 4, “Managing the Scientific Labor Force”
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Week 4 (5 February) Frameworks 1: Speaking truth to power

- F. Hayek, "The Use of Knowledge in Society," *The American Economic Review* 35 (1945): 519-530.
- Don K. Price, *The Scientific Estate* (Harvard, 1965).
 - Chapter 1, "Escape to the Endless Frontier"
 - Chapter 5, "The Spectrum from Truth to Power"
 - Chapter 7, "Professionals and Politicians"
 - Chapter 8, "Science and Freedom"
- Bruce L.R. Smith, *American Science Policy Since World War II* (Brookings, 1991)
 - Chapter 4, "Policy Disarray"
 - Chapter 5, "The Reagan Era"

Week 5 (12 February) Frameworks 2: Self-governance

- Robert K. Merton, "The Normative Structure of Science," in N. Storer (ed), *The Sociology of Science: Theoretical and Empirical Investigations* (Chicago, 1973), 267-278.
- C.P. Snow, *The Two Cultures* (Cambridge, 1959).
- Alvin Weinberg, "Impact of Large-Scale Science on the United States," *Science* 134 (1961): 161-164.
- Daryl Chubin, "How Large an R&D Enterprise?" in D. Guston and K. Keniston (eds) *The Fragile Contract: University Science and the Federal Government* (MIT Press, 1994): 118-144.
- Daniel Greenberg, *Science, Money, and Politics: Political Triumph and Ethical Erosion* (Chicago, 2003).
 - Chapter 1, "The Metropolis of Science"
 - Chapter 10, "Detour into Politics"
 - Chapter 11, "Nixon Banishes the Scientists"
 - Chapter 12, "The Sciences' Way of Politicking"

Week 6 (19 February) Frameworks 3: Co-Production

- Sheila Jasanoff (ed), *States of Knowledge: The Co-Production of Science and Social Order* (Routledge, 2004).
 - Chapter 1, "The Idiom of Co-Production" (Jasanoff)
 - Chapter 2, "Ordering Knowledge, Ordering Society" (Jasanoff)
 - Chapter 12, "Reconstructing Sociotechnical Order: Vannevar Bush and U.S. Science Policy" (Dennis)

- Yaron Ezrahi, *The Descent of Icarus* (Harvard, 1990)
 - Chapter 3, “Science and the Visual Culture of Liberal-Democratic Politics”
 - Chapter 4, “Science, Experimental Politics and the Culture of Democratization”
 - Chapter 11, “Science and the Decline of Public Culture”
 - Chapter 12, “Postmodern Science and Postmodern Politics”
 - David Guston and Daniel Sarewitz, “Real-Time Technology Assessment,” *Technology in Society*. 24 (2002): 93-109.
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Week 7 (26 February) Risk and Regulation 1: Nuclear

- U.S. Code, Administrative Procedures Act (1946) [available on-line: www.law.cornell.edu/uscode/5/usc_sup_01_5_10_I_30_5.html]
 - Skim: U.S. Code > Title 5 > Part I > Chapter 5—Administrative Procedure > Subchapters II and III
 - President’s Commission on the Accident at Three Mile Island, *The Need for Change: The Legacy of TMI* (Pergamon Press, 1979): 27-58.
 - Charles Perrow, *Normal Accidents* (Basic Books, 1984)
 - Chapter 1, “Normal Accident at Three Mile Island”
 - Chapter 2, “Nuclear Power as High Risk System”
 - Chapter 3, “Complexity, Coupling, and Catastrophe”
 - Langdon Winner, *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (Chicago, 1986)
 - Chapter 8, “On not Hitting the Tar-Baby”
 - Chapter 10, “The Whale and the Reactor”
 - Cora Marrett, “Closure and Controversy: Three Mile Island,” in H.T. Engelhardt and A.L. Caplan (eds) *Scientific Controversies* (Cambridge, 1987): 555-567.
 - Aaron Wildavsky, *Searching for Safety* (New Brunswick, 1988)
 - Chapter 6, “Does Adding Safety Devices Increase Safety”
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Week 8 (12 March) Risk and Regulation 2: Environment

- The President’s Message on the Environment, 10 February 1970.
- Reorganization Plan No. 3 of 1970, Message from the President of the United States Transmitting Reorganization Plans Nos. 3 and 4 of 1970, 9 July 1970.
- Government in the Sunshine Act (1976) [available on-line: http://www.law.cornell.edu/uscode/5/usc_sec_05_00000552---b000-.html]
 - Read: U.S. Code > Title 5 > Part I > Chapter 5 > Subchapter II > § 552b

- Adeline Levine, *Love Canal: Science, Politics, and People* (Lexington Books, 1982)
 - Chapter 2 “The Beginning”
 - Chapter 6 “Problem Solution”
 - Chapter 7 “Help and Self-Help”
 - M.K. Landy, M.J. Roberts, and S.R. Thomas, *The Environmental Protection Agency: Asking the Wrong Questions* (Oxford, 1990).
 - Chapter 2, “The Origins and Development of the EPA”
 - Chapter 9, “The Wrong Questions and Why”
 - Chapter 10, “Good Questions”
 - Bruce Ames, R. Magaw, and L.S. Gold, “Ranking Possible Carcinogenic Hazards,” *Science* 236 (1987): 271-277.
 - John Graham and Jon Wiener, “Confronting Risk Tradeoffs,” in Graham and Wiener (eds) *Risk versus Risk* (Harvard, 1995): 1-41.
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Week 9 (26 March)

Risk and Regulation 3: Biotechnology

- Diamond v. Chakrabarty, 447 U.S. 303 (1980).
- Sheila Jasanoff, *Designs on Nature: Science and Democracy in Europe and the United States* (Princeton, 2005).
 - Prologue
 - Chapter 1, “Why Compare?”
 - Chapter 2, “Controlling Nature”
 - Chapter 8, “Making Something of Life”
 - Chapter 9, “The New Social Contract”
 - Chapter 10, “Civic Epistemology”
- Dorothy Nelkin, “The Social Power of Genetic Information,” in Daniel Kevles and Leroy Hood (eds), *The Code of Codes: Scientific and Social Issues in the Human Genome Project* (Cambridge, 1992).
- Debora Spar, *The Baby Business: How Money, Science, and Politics drive the Commerce of Conception* (Harvard, 2006)
 - Chapter 4, “Designing Babies”
 - Chapter 5, “Return To The Forbidden Planet”
 - Chapter 7, “Songs Of Solomon: Prospects For Building A Better Baby Trade”

Week 10 (2 April) Citizens, Consumers, and the State 1: Surveillance /
Discipline / Risk

- Michel Foucault, *Discipline and Punish* (Vintage, 1979).
 - Part III, Chapter 3, "Panopticism"
 - Mary Douglas and Aaron Wildavsky, *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers* (Berkeley, 1982).
 - Chapter 1, "Risks are Hidden"
 - Chapter 4, "Assessment is Biased"
 - Sheila Jasanoff, "Civilization and Madness: The Great BSE Scare of 1996," *Public Understanding of Science* 6 (1997): 221-232.
 - James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (Yale, 1998).
 - Chapter 1, "Nature and Space"
 - Chapter 2, "Cities, People, and Language"
 - Chapter 3, "Authoritarian High Modernism"
 - Chapter 9, "Thin Simplifications and Practical Knowledge: Mētis"
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Week 11 (9 April) Citizens, Consumers, and the State 2: NGOs and Science
Policy

- A.S. Bix, "Diseases Chasing Money and Power: Breast Cancer and AIDS Activism Challenging Authority," *Journal of Policy History* 9 (1997): 5-32.
- Arthur Daemmrich and Gerog Krücken, "Risk versus Risk: Tragic Choices in Drug Regulation in the United States and Germany," *Science as Culture* 9 (2000), 505-534.
- Javier Lezaun, "Genetically Modified Foods and Consumer Mobilization in the UK," *Technikfolgenabschätzung Theorie und Praxis* 13 (2004): 49-56.
- Javier Lezaun, "Subjects of Knowledge: Epistemologies of the Consumer in the GM Food Debate," N. Stehr (ed), *The Governance of Knowledge* (Transaction Books, 2004).
- David Vogel, "When Consumers Oppose Consumer Protection: The Politics of Regulatory Backlash," *Journal of Public Policy* 10 (1989): 449-470.
- Phil Brown, "When the Public Knows Better: Popular Epidemiology Challenges the System," *Environment* 35 (1993): 16-41.
- Alastair Iles, "Identifying Environmental Health Risks in Consumer Products: Non-Governmental Organizations and Civic Epistemologies," *Public Understanding of Science* 14 (2005): 1-22.

Week 12 (16 April) Citizens, Consumers, and the State 3:
Global Climate Change

- Garrett Hardin, "The Tragedy of the Commons," *Science* 162 (1968): 1243-1248.
- Nicholas Stern, *The Economics of Climate Change* (Cambridge, 2007)
[www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm]
 - Part VI, "International Collective Action"
- William Nordhaus, "The Stern Review on the Economics of Climate Change," unpublished mss. (17 November 2006)
[<http://nordhaus.econ.yale.edu/SternReviewD2.pdf>]
- Partha Dasgupta, "Comments on the Stern Report," unpublished mss. (11 November 2006)
[<http://www.econ.cam.ac.uk/faculty/dasgupta/STERN.pdf>]
- Massachusetts, et al., *Petitioners v. Environmental Protection Agency* (Supreme Court of the United States, N. 05-1120)
- *Mass v EPA*, 549 U.S. (2007), decided 2 April 2007
- Daniel Sarewitz, "How Science Makes Environmental Controversies Worse," *Environmental Science and Policy*. 7 (2004): 385-403.
- William Cronon, "The Trouble with Wilderness; or, Getting Back to the Wrong Nature," in Cronon (ed.) *Uncommon Ground: Toward Reinventing Nature* (Norton, 1995): 69-90.

Week 13 (**before** 30 April) Attestive Visual Culture in Action

- Your assignment is to listen to or watch a Congressional hearing via the web. There are a number of websites that broadcast these, either live or post-hoc. One option is: <http://www.capitolhearings.org/>. Part of the assignment is to figure out when a hearing will take place and how to monitor it.

The **Final Exam** will be distributed on 30 April at 9:00 a.m. and is due back by 2 May at 9:00 a.m. (48 hours total).
