

History 418: Science, Technology, and the Cold War Spring 2010

Prof. Cyrus Mody
Humanities 309
x2553
Cyrus.Mody@rice.edu
Office hours: by appointment

Readings: I will make all readings available as PDFs posted on OwlSpace.

Grading:	Participation:	25%
	Discussion papers	25%
	Mid-term:	25%
	Final paper:	25%

Participation: If you attend class, contribute to discussion, and demonstrate a working knowledge of the readings you will get full participation credit. I realize that you may occasionally have to miss class or that you may feel uncomfortable speaking up in discussion. If so, please talk to me about ways to fulfill the participation credit (e.g. short thought papers on the readings). However, it will be easiest for you (and me) if you come to every class, ready to share your ideas and enthusiasm. [But please be courteous and keep in mind that everyone's in the same boat – a good class discussion is a group effort that raises everyone's participation score, and *not* the result of one or two students trying to take charge.]

Weekly papers: I would like you to hand in a one-page discussion paper each week. This should not take you a lot of time to write – I won't grade on prose or coherence of argument. Instead, concentrate on raising questions for us to discuss in class, and on asking me questions about background material that you need to understand the readings better. These are due **24 hours before class** each week. Readings and discussion papers are assigned (and can be returned) via Owl-Space – **SO PLEASE CHECK THE COURSE'S OWL-SPACE SITE REGULARLY.**

Midterm: There will be a take-home midterm exam handed out on March 11th and due back at the beginning of class on March 18th. This will be worth 25% of your total grade.

Final paper: The history of science (and technology and engineering and medicine and agriculture and ...) is much too sprawling a topic to cover adequately in one semester. There will be characters and discoveries that you (and I) cherish that we will not have time to talk about at all. There will be other issues which we will touch on which I hope will whet your appetite to learn more. To try to ensure that the course covers at least some of your neglected interests, therefore, I am assigning a term paper in lieu of a final exam. This paper will be due, in my office (or by email or Owl-Space), at 5:00 p.m. on the day that a final exam for this course would be held.

Note: any student with a documented disability needing academic adjustment or accommodations is requested to speak with me during the first two weeks of class. All discussions will remain confidential. Students with disabilities should also contact Disabled Student Services in the Ley Student Center.

Week of 1/14: Course overview (readings optional)

Kevles, Daniel J. (1992) "Foundations, Universities, and Trends in Support for the Physical and Biological Sciences, 1900-1992," *Daedalus* 121.4: 195-235.

Week of 1/21: War and preparations for post-war

Watch excerpts from *Modern Marvels: The Manhattan Project* (in-class)

Goldberg, Stanley (1992) "Inventing a Climate of Opinion: Vannevar Bush and the Decision to Build the Bomb," *Isis* 83.3: 429-452.

Thorpe, Charles and Steven Shapin (2000) "Who Was J. Robert Oppenheimer?: Charisma and Complex Organization," *Social Studies of Science* 30.4: 545-590.

Kevles, Daniel J. (1977) "The National Science Foundation and the Debate over Postwar Research Policy, 1942-1945: A Political Interpretation of *Science – The Endless Frontier*," *Isis* 68.1: 4-26.

Kleinman, Daniel Lee (1994) "Layers of Interests, Layers of Influence: Business and the Genesis of the National Science Foundation," *Science, Technology & Human Values* 19.3: 259-282.

Week of 1/28: The nuclear age

Watch excerpts from *Them!* (in-class)

Kraft, Alison (2009) "Manhattan Transfer: Lethal Radiation, Bone Marrow Transplantation, and the Birth of Stem Cell Biology," *Historical Studies in the Natural Sciences* 39: 171-218.

Galison, Peter & Barton Bernstein (1989) "In Any Light: Scientists and the Decision to Build the Hydrogen Bomb," *Historical Studies in the Physical and Biological Sciences* 19: 267-347.

Thorpe, Charles (2002) "Disciplining Experts: Scientific Authority and Liberal Democracy in the Oppenheimer Case," *Social Studies of Science* 32.4: 525-562.

Kaiser, David (2005) "The Atomic Secret in Red Hands? American Suspicions of Theoretical Physicists during the Early Cold War," *Representations* 90: 28-60.

Week of 2/4: McCarthyism

- Badash, Lawrence (2000) "Science and McCarthyism," *Minerva* 38: 53-80.
- Wang, Jessica (1992) "Science, Security, and the Cold War: The Case of E.U. Condon," *Isis* 83: 238-269.
- Olwell, Russell (1999) "Physical Isolation and Marginalization in Physics: David Bohm's Cold War Exile," *Isis* 90: 738-756.
- Kaiser, David (2002) "Nuclear Democracy: Political Engagement, Pedagogical Reform, and Particle Physics in Postwar America," *Isis* 93: 229-268.
-

Week of 2/11: Education and the standing army of science

- Geiger, Roger L. (1992) "Science, Universities, and National Defense, 1945-1970," *Osiris* 7: 26-48.
- Kaiser, David (2002) "Cold War Requisitions, Scientific Manpower, and the Production of American Physicists after World War II," *Historical Studies in the Physical Sciences* 33.1: 131-159.
- Lowen, Rebecca S. (1992) "'Exploiting a Wonderful Opportunity': The Patronage of Scientific Research at Stanford University, 1937-1965," *Minerva* 30: 391-421.
- Leslie, Stuart W. (1987) "Playing the Education Game to Win: The Military and Interdisciplinary Research at Stanford," *Historical Studies in the Physical Sciences* 18.1: 55-88.
-

Week of 2/18: American science abroad

- Leslie, Stuart W. & Robert Kargon (2006) "Exporting MIT: Science, Technology, and Nation-Building in India and Iran," *Osiris* 21: 110-130.
- Bassett, Ross (2009) "Aligning India in the Cold War Era: Indian Technical Elites, the Indian Institute of Technology at Kanpur, and Computing in India and the United States," *Technology and Culture* 50: 783-810.
- Moon, Suzanne M. (1998) "Takeoff or Self-Sufficiency? Ideologies of Development in Indonesia, 1957-1961," *Technology and Culture* 39.2: 187-212.
- Doel, Ronald E. & Kristine C. Harper (2006) "Prometheus Unleashed: Science as a Diplomatic Weapon in the Lyndon B. Johnson Administration," *Osiris* 21: 66-85.
-

Week of 2/25: Global nuclearities

- Krige, John (2006) "Atoms for Peace, Scientific Internationalism, and Scientific Intelligence," *Osiris* 21: 161-181.
- Hecht, Gabrielle (2006) "Negotiating Global Nuclearities: Apartheid, Decolonization, and the Cold War in the Making of the IAEA," *Osiris* 21: 25-48.
- Barth, Kai-Henrik (2003) "The Politics of Seismology: Nuclear Testing, Arms Control, and the Transformation of a Discipline," *Social Studies of Science* 33.5: 743-781.
- Gusterson, Hugh (1999) "Nuclear Weapons and the Other in the Western Imagination," *Cultural Anthropology* 14.1: 111-143.
-

Week of 3/11: The social sciences

!!!MID-TERM HANDED OUT!!! (will cover topics up through the social sciences)

- Watch excerpts from *The Fog of War* (in-class)
- Gieryn, Thomas F. (1999) "The U.S. Congress Demarcates Natural Science and Social Science (Twice)," in *Cultural Boundaries of Science: Credibility on the Line* (Chicago: University of Chicago Press): 65-114.
- Hamblin, Jacob Darwin (2006) "Exorcising Ghosts in the Age of Automation: United Nations Experts and Atoms for Peace," *Technology and Culture* 47.4: 734-756.
- Solovey, Mark (2001) "Project Camelot and the 1960s Epistemological Revolution: Rethinking the Politics-Patronage-Social Science Nexus," *Social Studies of Science* 31.2: 171-206.
- Crowther-Heyck, Hunter (2006) "Patrons of the Revolution: Ideals and Institutions in Postwar Behavioral Science," *Isis* 97: 420-446.
-

Week of 3/18: Corporate research

!!!MID-TERM DUE BACK BEGINNING OF CLASS!!!

- Akera, Atsushi (2002) "IBM's Early Adaptation to Cold War Markets: Cuthbert Hurd and His Applied Science Field Men," *Business History Review* 76.4: 767-802.
- Misa, Thomas J. (1985) "Military Needs, Commercial Realities, and the Development of the Transistor, 1948-1958," in *Military Enterprise and Technological Change: Perspectives on the American Experience*, ed. Merritt Roe Smith (Cambridge, Mass.: MIT Press): 253-287.

Knowles, Stephen G. & Stuart W. Leslie (2001) “‘Industrial Versailles’: Eero Saarinen’s Corporate Campuses for GM, IBM, and AT&T,” *Isis* 92.1: 1-33.

Lécuyer, Christophe (1999) “Silicon for Industry: Component Design, Mass Production, and the Move to Commercial Markets at Fairchild Semiconductor, 1960-1967,” *History and Technology* 16: 179-216.

Week of 3/25: Big Science

Galison, Peter (1985) “Bubble Chambers and the Experimental Workplace,” in *Observation, Experiment, and Hypothesis in Modern Science*, ed. Peter Achinstein & Owen Hannaway (Cambridge, Mass.: MIT Press): 311-359.

Wang, Zuoyue (1995) “The Politics of Big Science in the Cold War: PSAC and the Funding of SLAC,” *Historical Studies in the Physical Sciences* 25.2: 329-356.

Launius, Roger D. (2008) “Managing the Unmanageable: Apollo, Space Age Management, and American Social Problems,” *Space Policy* 24: 158-165.

Mody, Cyrus C.M. (2008) “‘How I Learned to Stop Worrying and Love the Bomb, the Nuclear Reactor, the Computer, Ham Radio, and Recombinant DNA,’” *Historical Studies in the Natural Sciences* 38.3 (2008): 451-461.

Bodnarczuk, Mark & Lillian Hoddeson, “Megascience in Particle Physics: The Birth of an Experiment String at Fermilab,” *Historical Studies in the Natural Sciences* 38: 508-534.

Week of 4/8: Counterculture and backlash

Watch excerpts from *Soylent Green* (in-class)

Smith, Michael B. (2001) “‘Silence, Miss Carson!’: Science, Gender, and the Reception of ‘Silent Spring,’” *Feminist Studies* 27.3: 733-752.

Egan, Michael (2002) “The Social Significance of the Environmental Crisis: Barry Commoner’s *The Closing Circle*,” *Organization and Environment* 15.4: 443-457.

Kirk, Andrew (2001) “Appropriating Technology: The Whole Earth Catalog and Counterculture Environmental Politics,” *Environmental History* 6: 374-394.

Oreskes, Naomi, Erik M. Conway & Matthew Shindell (2008) “From Chicken Little to Dr. Pangloss: William Nierenberg, Global Warming, and the Social Deconstruction of Scientific Knowledge,” *Historical Studies in the Natural Sciences* 38: 109-152.

Week of 4/15: The Cold War arc – a case study

Dennis, Michael Aaron (1994) “‘Our First Line of Defense’: Two University Laboratories in the Postwar American State,” *Isis* 85.3: 427-455.

Mackenzie, Donald (1990) excerpts from *Inventing Accuracy* (Cambridge, Mass.: MIT Press): 60-94 and 185-239.

Wisnioski, Matthew H. (2003) “Inside ‘The System’: Engineers, Scientists, and the Boundaries of Social Protest in the Long 1960s,” *History and Technology* 19.4: 313-333.

Leslie, Stuart W. (1993) “The Days of Reckoning: March 4 and April 3,” in *The Cold War and American Science: The Military-Industrial-Academic Complex at MIT and Stanford* (New York: Columbia University Press): 233-256.

Week of 4/22: The Reagan era

Watch excerpts from *War Games* (in-class)

Westfall, Catherine (2008) “Retooling for the Future: Launching the Advanced Light Source at Lawrence’s Laboratory, 1980-1986,” *Historical Studies in the Natural Sciences* 38: 569-609.

Slayton, Rebecca (2003) “Speaking as Scientists: Computer Professionals in the Star Wars Debate,” *History and Technology* 19: 335-364.

Abbate, Janet (2001) “Government, Business, and the Making of the Internet,” *Business History Review* 75.1: 147-175.

Kevles, Daniel (1997) “Big Science and Big Politics in the United States: Reflections on the Death of the SSC and the Life of the Human Genome Project,” *Historical Studies in the Physical and Biological Sciences* 27: 269-298.
