Professor: Clark A. Miller  
Time: Fridays, 9 a.m. – 12:30 p.m.  
Location: Interdisciplinary B, Room 366G

Course Description:

This course is the second half of an integrated, yearlong seminar that provides the theoretical and methodological foundations for PhD research in the Human and Social Dimensions of Science and Technology. This sequence is the central focus of student coursework during their first year in the HSD PhD program, although students in other programs are also welcome to participate. Readings focus on the interdisciplinary integration of four key fields of study of science and technology: conceptual and philosophical; historical; social and institutional; and policy and political. Additional emphasis will be placed on research design and methods in the humanistic and social study of science and technology. This course explores the theoretical foundations for understanding the interactions of science, technology, power, politics, policy, and democracy in contemporary and historical societies. Today, rationality and democracy form to the foundational pillars of political organization and policy development. At times, they support one another closely—at other times they are in tension. This course will help students to better understand and assess these relationships.

Course Objectives:

Upon successful completion, students will have acquired an understanding of:

1. The basic conceptual and theoretical foundations for research and analysis in the humanistic and social studies of science and technology, including:
   - **Conceptual and philosophical foundations**: problems of epistemology and ontology in science; logics and grammars of reasoning and classification; problems of evidence, objectivity, credibility, and rationality.
   - **Historical foundations**: emergence and formation of scientific ideas, practices, and institutions, and technological systems; historical contexts of science and technology and their social uptake.
   - **Social and institutional foundations**: social and institutional arrangements of contemporary science, e.g., the research university, the laboratory, the field; social and institutional dimensions of technological systems.
   - **Political foundations**: relationships between science, technology, and the state; relationships between science, technology, and democracy.

2. The skills required to successfully integrate ideas, concepts, theories, data, and analyses from the foundational disciplines into comprehensive understandings of the human and social dimensions of science and technology.
3. Research strategies and techniques for humanistic and social studies of science and technology, including:
   • The variety of research techniques and methods common to the humanistic and social studies of science and technology.
   • The ethical dilemmas of humanistic and social science research in science and technology and responsible conduct of research.
   • The importance of research design and the strategies involved in collecting, interpreting, and representing research materials and finding.

ASU Policies:

Student Academic Integrity

Students are required to adhere to the policy on student conduct identified in the ASU Student Academic Integrity Policy and the Arizona Board of Regents Policy Manual. Academic integrity and honesty is expected of all students at Arizona State University, and is so stated in the ASU Student Code of Conduct:

https://eoss.asu.edu/dos/srr/codeofconduct

Plagiarism or cheating can result in the grade of "XE". The XE grade denotes failure through academic dishonesty. Students are responsible for understanding these policies and following proper academic research and citation protocol.

Incomplete Policies

According to University grading policies (https://students.asu.edu/grades), a grade of “I” (incomplete) may be given by an instructor when a student is otherwise doing acceptable work but is unable to complete the course because of illness or other conditions beyond their control. Incompletes must be completed within a calendar year; after that, the “I” changes to an “E”. The student must complete the Request for Incomplete Form, available from SFIS, and deadlines must be set with the instructor for completion of the work.

Disability Accommodations for Students

Students who feel they may need a disability accommodation(s) in class must provide documentation from the Disability Resource Center to the class instructor verifying the need for an accommodation and the type of accommodation that is appropriate. Students who desire accommodations for a disability should contact DRC as early as possible (i.e., before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student’s responsibility to make the first contact with the DRC. The DRC website can be found at: https://eoss.asu.edu/drc.
Sexual Violence and Harassment

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at: https://sexualviolenceprevention.asu.edu/faqs

Course Readings:

Course readings will be provided on-line or through the course blackboard site, available through my.asu.edu, except for the books, which you must order or borrow from the library.

Course Requirements:

Course Discussions and Leadership (40%): Students will lead two seminar discussions and come to class prepared to participate in every class meeting. When leading discussion, students will be expected to prepare an outline for the class that reviews the general arguments of the assigned reading and that puts the pieces together into intellectual conversation to create a synthetic assessment of the core findings or conclusions.

Project (50%) and Discussions (10%):

- Students will complete a research proposal. For students in the HSD program, this proposal will be for their 2nd-year project. For other students, it may be for any future research project. This proposal will take the form of an NSF-format proposal. This proposal should be developed in collaboration with the student’s primary advisor. The final proposal must include a project summary (1 page, with a statement, each, of intellectual merit and broader impact), a project description (10 pages), and a bibliography.
- Additional instructions will be forthcoming in class, including dates for preliminary drafts. Students will produce 2, 5, and 8-page drafts. The last must be submitted to your advisor for feedback prior to completing the final 10-page version for class. You should also get feedback from your advisor on your 2- and 5-page proposals, if they have time.

Fri., Jan. 15 – Introductory Class

Fri., Jan. 22 – A Starting Point for Theorizing Science and Technology in Society

Selections from Lewis Mumford, *Technics and Civilization*.

- “Objectives”
- Chapter 1. “Cultural Preparation”
• Chapter 8. “Orientation”

Sir Julian Huxley, “The Future of Man—Evolutionary Aspects” (required: Huxley’s lecture only, pp. 1-23, but feel free to browse some of the other stuff; it’s very interesting)

Fri., Jan. 29 – History of Science and the State in the 20th Century

Selections from John Krige and Dominique Pestre, Science in the 20th Century (Taylor and Francis, 1997).
- Dominique Pestre, “Science, Political Power, and the State”
- Everett Mendelsohn, “Science, Scientists, and the Military”
- W. B. Carlson, “Innovation and the Modern Corporation”
- Deborah Fitzgerald, “Mastering Nature and Yeomen”
- Daniel Kevles, “From Eugenics to Genetic Manipulation”

Fri., Feb. 5 – Discussion of Student Proposals, Session I
- Come to class with a 2-page proposal for a made-up research project, based on the idea of filling a gap in an existing scholarly conversation.

Fri., Feb. 12 – Theories of Co-Production

- Sheila Jasanoff, “The Idiom of Co-Production”
- Sheila Jasanoff, “Ordering Knowledge, Ordering Society”
- John Carson, “The Science of Merit and the Merit of Science: Mental Order and Social Order in Early 20th Century United States and France”
- Yaron Ezrahi, “Science and Political Imagination in Contemporary Democracies”

Fri., Feb. 19 – Knowledge, the State, and Social Imagination

Review Hacking and Gusterson from HSD 601.

Fri., Feb. 26 – Knowledge, Deliberation, and Democracy

- Review the readings on credibility from HSD 601.

Fri., Mar. 4 – We will reschedule this class at a convenient time for everyone.

Discussion of Student Proposals, Session II - Come to class with a 2-page proposal for your second-year project. Send to the class by Feb. 26th the primary theoretical article that will be the starting off point for the literature basis for the project (i.e., the central article that is either wrong or leaves open or identifies a gap that needs to be filled). You must identify your second year project advisor in your proposal.

Fri., Mar. 11 – No Class. Spring Break.

Fri., Mar. 18 – Socio-Technological Constitutions

- Review Daemmrich and Krucken from HSD 601.

Fri., Mar. 25 – The Politics of Things

- Bruno Latour, We Have Never Been Modern (Harvard, 1993).
Fri., Apr. 1 – Political Cultures, Innovation/Regulation, and Democracy


Fri., Apr. 8 – Knowledge and Power in Transnational Contexts


Fri., Apr. 15 – Discussion of Student Proposals, Session III

- Come to class with a 5-page proposal for your second-year project.

Fri., Apr. 22 – Democratizing Science and Technology


Submit your 8-page proposal to your advisor for feedback by April 22nd.

Fri., Apr. 29 – Anticipatory Governance


Submit the final 10-page version of your proposal to me by May 6th.