

HTS XXX
Sample Syllabus for a new graduate course on
Science, Technology and Security
Professor Kristie Macrakis
Fall 2011

Meets: Wednesday, 5-8 pm, Old Civil Engineering Building 304

Office: Old Civil Engineering Building, 120

E-mail: kristie.macrakis@hts.gatech.edu

Phone: 404-894-2185

Office Hours: Monday & Wednesday, 3:30-4:30 pm, after class and very gladly by appointment

This year's topic: SECRECY AND SCIENCE

This year's topic for the graduate seminar is the relationship between secrecy and science. We will first examine the nature of secrecy – its definition, history, philosophy and sociology. We will then turn to the nature of science and look at why and how it was defined as an open endeavor. We will study openness and secrecy in science. We will then take a historical look at the rise of secrecy in science starting with the early modern period. We will close with studies on secrecy vs. openness in science in the 20th Century and student research.

This is a research seminar. Students will be given ample opportunity to work on their own research while using the general material on secrecy as a conceptual framework. Students can also use the seminar as they study for comprehensive exams.

Requirements:

Reports on Weekly Readings, 25%

Oral Presentation/ Midterm Paper Proposal (due 5 October), 25%

A Major Research Paper, 20-30 pages, due on 7 December 2011 in class, 50%

Required Books:

Bok, Sissela. *Secrets*. New York: Vintage, 1989.

Eamon, William. *Science and the Secrets of Nature*. Princeton: Princeton University Press, 1994.

Moynihan, Daniel. *Secrecy: the American Experience*. New Haven: Yale University Press, 1999.

New York Times Staff: *Open Secrets: Wikileaks, War and American Diplomacy*. Grove Press, 2011. (Get as kindle book)

Course Topics & Readings

UNIT ONE: HISTORY AND PHILOSOPHY OF SECRECY

Week One: How History of Science and Secrecy Intersect

Introductions, Syllabus & Mini-Lecture

Handouts: "Bibliography on Openness and Secrecy in Science and Technology."
Science, Technology and Human Values, Volume 10, Issue 2, (Spring 1985),
Pps. 110-114 & updated bibliography (since 1985) by Macrakis

Week Two: Approaches to Secrecy: Definitions, History of Concept, Philosophy (Ethics of Concealment) Secret Societies, Trade and Corporate Secrecy, Secrecy & Competition in Science

Readings: Bok Book on Secrecy (Read chapters I-XI)

Week Three: Secrets of State, Military Secrecy, Social Science Research, Ethics

Readings: Bok Book on Secrecy (Read chapters XII-XVIII)

Week Four: Secrecy as Regulation, WW I, Communism, WW II

Readings: Moynihan Book on Secrecy (Read Introduction, chapters 1-4)

Week Five: A Culture of Secrecy, Bureaucratization, A Culture of Openness

Readings: Moynihan Book on Secrecy (Read chapters 6-8)

Week Six: Secrecy and Openness In Science

28 September: Hull & McMullan on Secrecy and Openness in Science (pdf's in special issue on secrecy in *Science, Technology and Human Values*, Volume 10, Issue 2, (Spring 1985)

UNIT TWO: SOCIOLOGY OF SECRECY

Week Seven: The Torment of Secrecy: Sociological Perspectives

Readings: Shils book on the Torment of Secrecy

MIDTERM PAPER PROPOSAL AND OUTLINE DUE!

Week Eight: The Sociology of Secrecy and Secret Societies, Rise of Openness in Science

Readings:

- George Simmel. "The Sociology of Secrecy and Secret Societies." *The American Journal of Sociology* (1906), 11, pp. 441-498.
- Robert Merton and the rise of imperatives of openness in science (pdf's)

UNIT THREE: HISTORY OF SCIENCE AND SECRECY

Week Nine: Craft Secrecy and Openness in the Scientific Revolution

Readings:

- Pamela Long on Openness and Craft Secrecy (pdf Selections from Long book).
-"What is a Secret? Secrets and Craft Knowledge in Early Modern Europe"
(Pamela Smith in Leong & Rankin, *Secrets and Knowledge in Medicine, 1500-1800*, 2011)
- Kristie Macrakis. "Confessing Secrets: Secret Communication and the Origins of Modern Science." *Intelligence and National Security*, pdf.

Week Ten: Books of Secrets, Science and the Secrets of Nature

Readings: *Science & the Secrets of Nature* (William Eamon book, intro, chs. 1,4,6,7,9,10, conclusion)

Week Eleven: Cartography and Cosmography in the New World

Readings:

- Cartography and Cosmography (Selections from Maria Portuondo book, *Secret Science*, handout)
- Alison Sandman – "Controlling Knowledge: Navigation, Cartography, and Secrecy in the Early Modern Spanish Atlantic" pdf)

Week Twelve: The Bomb

Readings:

- Selections from Alex Wellerstein: *Knowledge and the Bomb: Nuclear Secrecy in the United States*, dissertation Harvard University, 2010. (made available by the author)."
- Patenting the Bomb: Nuclear Weapons, Intellectual Property, and Technological Control." *Isis*, 99, no. 1 (March 2008): 57-87.
- Selections from book *Bomb Power* by Garry Willis
- Moynihan, ch. 5 on the Bomb.

Week Thirteen: The Cold War, Technology Transfer and the National Security State

Readings:

- Bucy, I. Fred. "Technology Transfer and East/West Trade: A Reappraisal." *International Security*, Volume 5, Number 3 (Winter 1980/81): 132-151.
- Kristie Macrakis "Technology Transfer and Espionage in the Quest for Scientific-Technical Prowess." In *Science under Socialism*, 1999, pps.82-121.
- Commission on Protecting and Reducing Government Secrecy, Secrecy: Report of the Commission on Protecting and Reducing Government Secrecy* (Washington, D.C.: Government Printing Office, 1997)

Week Fourteen: Post 9/11 National Security and Science and Technology: From Bioterrorism to Wikileaks

Readings:

- National Research Council. *Globalization, Biosecurity, and the Future of the Life Sciences* (National Academies Press, 2006).
- Wikileaks(Selections from Open Secrets)

Week Fifteen: Emerging Technologies and National Security: Nanotechnology

Readings:

- Langdon Winner's testimony on the Societal Implications of Nanotechnology, 9 April 2003.
- Daniel Ratner; Mark A. Ratner. *Nanotechnology and Homeland Security: New Weapons for New Wars*, 2003. Foreward, chs. 1-4

Week Sixteen

7 December: Research Papers Due/Final Results presented to class/ Hand in paper/ class party