

## SCIENCE, TECHNOLOGY AND SOCIETY PROGRAM

Professor Richard Worthington, coordinator

Steering Committee: Richard McKirahan, David Tanenbaum, Richard Worthington

Science, technology and society (STS) is an interdisciplinary field that studies the conditions under which the production, distribution and utilization of scientific knowledge and technological systems occur and the consequences of these activities upon different groups of people. The disciplines out of which STS emerged were the history and philosophy of science and technology, science and technology policy studies and sociology. These origins shape the primary modes of analysis. More recently, anthropology, literary studies and cultural history have all left their mark in fundamental ways on STS. The intercollegiate program brings together courses taught in a variety of departments. It is divided into three principal areas: history of science and technology, philosophy of science and technology, and political, cultural and social perspectives on science and technology. The latter covers such topics as national science policy, how science and technology affect people and how computers affect society, as well as more specific subjects such as the Internet, pollution and genetic engineering.

Students majoring in STS are well prepared to pursue graduate study in related fields and also have a solid foundation for work as science journalists, policy researchers and advisors, science educators and advocates of change around issues such as gender and science, renewable energy and the social effects of the information revolution. In addition, STS is an excellent academic background for students intending to pursue careers in medicine, law, business and education.

STS may be joined with public policy analysis (PPA) in the STS/PPA Major. There is also an STS/gender & women's studies major (see the gender & women's studies section of this catalog).

### Requirements for the Major in Science, Technology and Society

1. Core courses in the three broad areas of STS:
  - a. History of Science and Technology (two of the following): STS 80, 81, 82
  - b. Philosophy of Science and Technology: PZ PHIL 103 or PHIL 104
  - c. Political, Cultural and Social Perspectives on Science and Technology: STS 1, POLI 139 or HM ANTH 111
2. Five courses in mathematics, science and/or engineering (including experimental and physiological psychology):
  - a. One semester of a laboratory science
  - b. One semester of mathematics at the level of first-semester calculus or higher. This requirement may be filled by a comparably advanced course in statistics or principles of computing.
  - c. At least three of the five courses must be in one field and must count toward a major in that field or be necessary prerequisites to courses that count toward a major in that field.
3. Five more courses for specialization, including:
  - a. Two STS-approved courses in one of the three broad areas of STS
  - b. Three courses in a department related to the student's interest in STS. This department may be, but need not be, a science department. The three courses must count toward a major in that department or be necessary prerequisites to such courses. This department is called "the department of emphasis."
4. Senior Integrative Seminar
5. Senior Thesis

Each student chooses a faculty advisor who is a member of the field group on STS and

a member of the Pomona faculty. The student's program must be determined in consultation with the student's advisor and with a faculty member in the department of emphasis. (In the case where the STS advisor is a member of the department of emphasis, there is no need to secure the approval of another member of that department.) The student's program must show intellectual integrity and academic coherence.

## Requirements for a Minor in Science, Technology and Society

The STS minor is comprised of six courses focused in one of the three STS tracks (history of science and technology; philosophy of science and technology; or political, cultural and social perspectives on science and technology) as follows:

1. STS 1, Introduction to Science, Technology and Society; and one upper division STS-approved course outside the student's area of focus
2. Focus courses for the STS tracks:
  - a. *History of science and technology*: two of STS 80, 81, 82; two additional STS-approved courses in history
  - b. *Philosophy of science and technology*: PZ PHIL 103; PHIL 104; and two additional STS-approved courses in philosophy
  - c. *Political, cultural and social perspectives*: one of STS 1, POLI 139, HM ANTH 111; and three additional STS-approved courses in political, cultural and social perspectives

## Requirements for the Major in STS/Public Policy Analysis (PPA)

This option is designed for students who wish to focus on public policy issues in science, technology and society. It is important to choose this option no later than the second semester of the sophomore year by contacting the program coordinators in both programs.

1. Five-course public policy sequence:
  - a. ECON 51, 52
  - b. POLI 3, 135
  - c. One of the following science and public policy courses: POLI 136, HM Social Sciences (SOSC) 124, Interdisciplinary (ID) 187, PZ Political Studies (POST) 133 or 184
2. Statistics: ECON 103, POLI 90, PSYC 158, or a course approved by the PPA program coordinator
3. Core courses in history and philosophy of science and technology:
  - a. History of science and technology: two from STS 80, 81, 82
  - b. Philosophy of science and technology: PZ PHIL 103 or PHIL 104
4. Four courses in mathematics (30 or above), science and/or engineering (including experimental and physiological psychology, excluding the statistics requirement above):
  - a. One semester of a laboratory science
  - b. Three courses in one field that count toward a major in that field, or that are prerequisites to courses that count toward a major in that field
5. PPA 190, 191, 195, three-course internship thesis sequence

## Courses

### Core Courses

*Science, technology and society (STS) courses satisfy Area 2 of the Breadth of Study Requirements.*

**HM 1. Introduction to Science, Technology and Society.** *Ms. de Laet.* General introduction to the interactions among science, technology and society and approaches to studying these interaction in STS. Examines different concepts of rationality and the values

- that underlie scientific and technological endeavors. Evaluates the role of value conflict in technology controversies, such as the design of babies through genetic engineering. Spring 2010.
- HM 80, 81, 82. History of Science and Technology.** *Mr. Olson, Ms. Wernimont.* Conceptual and institutional development of the scientific enterprise. The changing content of scientific thought in its intellectual context provides the major focus, but substantial attention is also directed to the relation between scientific developments and social and economic conditions. 80, Science and Technology in the Ancient and Medieval Worlds, Spring 2010; 81, Science and Technology in the Early Modern World, Fall 2010; 82, Science and Technology in the Modern World, Fall 2009.
- PZ PHIL 103. Philosophy of Science: Historical Survey.** *Mr. Keeley.* Introduction to the philosophy of science via an exploration of the recent history of the field. The development of theories of science will be traced from the Vienna Circle and early 20th century logical positivism, through the work of Thomas Kuhn ending with more contemporary views, such as feminist philosophy of science. Prerequisite: one course in philosophy, one college-level science course, or permission of instructor. Fall 2010.
- PHIL 104. Philosophy of Science: Topical Survey.** *Ms. Perini.* Introduction to a selection of topics in the philosophy of science, which might include the structure of scientific theories, the nature of scientific explanation, confirmation of scientific hypotheses, the difference between science and non-science, the reality of theoretical entities and contemporary critiques of sciences. Prerequisite: college-level science course, philosophy course or permission of instructor. Spring 2010.
- HM ANTH 111. Introduction to the Anthropology of Science and Technology.** *Ms. de Laet.* Introduction to science and technology as cultural phenomena; this is a hands-on initiation in anthropology and STS. Applying basic anthropological methods in the academic environment, students gain an understanding of science and technology as culturally, socially and historically specific ways of constructing knowledge. In other words, rather than taking for granted the ways in which we make knowledge, this course makes those ways “strange.” Next offered 2010-11.
- HM 114. Social and Political Issues in Technical Projects.** *Ms. de Laet.* An opportunity to reflect upon a student’s work in a clinic or in the laboratory—and, more generally, on future work as a scientist or engineer—from a non-technical perspective. Helps students analyze technical problems in social terms and vice versa. Highlights the important of cultural frameworks what is gained from developing an integrated perspective on technology and society. Fall 2009.
- POLI 139. Politics of Community Design.** *Mr. Worthington.* The design of things like cars, software, buildings and cities is normally thought to be the exclusive province of highly trained professionals, such as architects and engineers. This course examines design as a political activity, with special emphasis on community efforts to create safe, prosperous and livable spaces. Fall 2009.
- HM 185. Science and Engineering from an “Other” Point of View.** *Mr. Olson.* Examines the character and consequences of science and engineering by exploring how they are viewed by groups which have felt excluded or exploited—especially women, people of color and peoples in the “developing” world, and why relatively few from such groups participate in scientific and engineering professions. Are there features of scientific and engineering institutions, conceptual structures, attitudes and methodologies which encourage racist and imperialist behaviors? Fall 2010.
- HM 187. HIV-AIDS: Science, Society and Service.** *Mr. Haushalter.* Covers basic physiological issues; strategies for preventing the transmission of HIV; mechanism of antiretroviral therapies. Also, the scale of the global HIV-AIDS pandemic; the history of HIV-AIDS in America; the role of denial, stigma, shame, race, gender and socioeconomic in HIV-AIDS. Service objectives for the course include helping those infected or affected by HIV-AIDS in our community; and educating our community about HIV-AIDS. Next offered 2010-11.

- 190. Senior Integrative Seminar.** *Staff.* Students read and discuss seminal and provocative works on STS. Each student conducts an independent project in an area of interest and competence. Discussions of research in progress, oral presentations of final product, written paper. Each fall.
- 191. Senior Thesis.** *Staff.* Exercise in thought, research and effective prose writing in which senior students are expected to demonstrate competency in working with select data, ideas, techniques and sources that characterize and inform their major area of study within STS. Each semester.
- 99/199. Reading and Research.** *Staff.* Prerequisite: permission of instructor. 99, lower level; 199, advanced work. Course or half-course. May be repeated. Each semester. (Summer Reading and Research taken as 98/198.)

### Approved for the Major in STS

*See appropriate college catalogs for full descriptions.*

#### *History of Science and Technology*

- PZ ANTH 153. History of Anthropological Theory  
 ASTR 6. Archeoastronomy/World Cosmology  
 PZ ECON 155. History of Economic Thought  
 GEOL 125. Earth History  
 PZ HIST 16. Environmental History  
 HM HIST 179S. Science, Politics and Religion in Early Modern England  
 HM HIST 182. Science and Religion in the Western Tradition  
 HM HIST 183. Science and North American Culture  
 PZ MATH 1. Mathematics, Philosophy and the Real World  
 PZ MATH 108. History of Mathematics

#### *Philosophy of Science and Technology*

- PHIL 37. Values and the Environment  
 PHIL 38. Bioethics  
 PHIL 40. Ancient Philosophy  
 HM PHIL 101. Theory of Knowledge  
 HM PHIL 125. Ethical Issues in Science and Engineering  
 HM PHIL 140. Environmental Philosophy

#### *Political, Cultural and Social Perspectives on Science and Technology*

- ANTH 59. Archeology  
 HM ANTH 110. Knowledge, Belief and Cultural Practices  
 PZ ANTH 140. The Desert as a Place  
 HM ANTH 179. Cultural Life of Technical Objects/Material Culture  
 JS BIOL 69. Discovery, Innovation and Risk  
 JS BIOL 159. Natural Resource Management  
 HM CSCI 162. Beyond Calculation  
 EA 89. Classic Readings in Environmental Studies  
 HM ENGN 201. Economics of Technical Enterprise  
 HM ENGN 202. Engineering Management  
 PZ ENVS 10. Environment and Society  
 PZ ENVS 104. Doing Natural History  
 PZ ENVS 141. Ecology, Human Rights and Development

PZ ENVS 147. Community, Ecology and Design  
 PZ ENVS 148. Ethno-ecology  
 PZ ENVS 162. Gender, Environmental and Development  
 GEOL 110. Remote Sensing of the Earth's Environment  
 HM HIST 179. Special Topics in the History of Science  
 SC HIST 179. Disease, Identity and Society  
 CM ID 141. Leadership in the Sciences  
 PZ IIS 113. Science, Politics and Alternative Medicine  
 HM LIT 179. Women and Science in the Renaissance and Enlightenment  
 PZ MATH 10G. Mathematics in Many Cultures  
 PZ NATS 71/ JS BIOL 71. Biotechnology  
 PZ PHIL 118: Monkey Business  
 PHYS 17. Physics in Society  
 HM PHYS 80. Topics in Physics: Nuclear Reactors  
 POLI 135. Policy Implementation and Evaluation  
 POLI 136. Politics of Environmental Justice  
 POLI 138. Organizational Theory  
 PZ POLS 176. Environmental Policy  
 PZ POLS 184. Science, Technology and Politics  
 PZ PSYC 162. The Year 2012: Utopia or Oblivion  
 PSYC 176. The Psychology of Health and Medicine  
 PZ PSYC 190. History and Systems of Psychology  
 HM RLST 179. Ghosts and the Machines: Occult Mediumship and Modern Media  
 HM RLST 184. Science and Religion  
 SOC 55. Population and Environment  
 PZ SOC 122. Sociology of Health and Medicine  
 HM SOSC 124. 20th Century U.S. Science Policy  
 HM SOSC 147. Enterprise and the Entrepreneur

## SOCIOLOGY DEPARTMENT

Associate Professor Gilda Ochoa, department chair

*Professors Grigsby<sup>2</sup>, Rapaport*  
*Associate Professors Ochoa, Thai<sup>1</sup>*  
*Assistant Professor Beck*

Sociology examines the ways people influence each other through societal institutions, organizations and groups. Sociology often combines scientific and humanistic perspectives in the study of such varied topics as urban life, family relations, race and ethnicity, social class, social and religious movements, aging and gender roles. The Sociology Major at Pomona College emphasizes social theory and research and culminates in a senior seminar during the fall semester in which students write a critical synthesis of sociological research on a topic of their choice. Students also have the option of completing a senior thesis in which they carry out an original research project under the direction of one or two faculty members. The department also offers a minor.

<sup>1</sup>On leave Fall 2009

<sup>2</sup>On leave Spring 2010