SCIENCE AND TECHNOLOGY STUDIES (DIV II)

Chair: Professor JOSEPH CRUZ

Advisory Committee: Professors: M. ALTSCHULER, D. DETHIER, L. KAPLAN, J. THOMAN. Associate Professor: B. MLADENOVIC.

Science and Technology Studies (SCST) is an interdisciplinary program concerned with science and technology and their relationship to society. In addition to the historical development and a philosophical understanding of the ideas and institutions of science and technology; Science and Technology Studies also examines their ethical, economic, social, and political implications.

The role that science and technology have played in shaping modern industrial societies is generally acknowledged, but few members of those societies, including scientists and engineers, possess any understanding of how that process has occurred or much knowledge of the complex technical and social interactions that direct change in either science or society. The Science and Technology Studies Program is intended to help create a coherent course of study for students interested in these questions by providing a broad range of perspectives. At present, courses are offered which examine the history or philosophy of science and technology, the sociology and psychology of science, the economics of research and development and technological change, science and public policy, technology assessment, technology and the environment, scientometrics, and ethical-value issues.

To complete the requirements of the program, students must complete six courses. The introductory course and senior seminar are required and three elective courses are chosen from the list of designated electives. Students may choose to concentrate their electives in a single area such as technology, American studies, philosophy, history of science, economics, environment, sociology, current science, or current technology, but are encouraged to take at least one elective in history, history of science, or philosophy. The sixth course necessary to complete the program is one semester of laboratory or field science in addition to the College's three-course science requirement. Other science courses of particular interest include Chemistry 110 and Biology 134.

The program is administered by a chair and an advisory committee of faculty who teach in the program. Students who wish to enroll normally register with the chair by the fall of their junior year.

Elective Courses

ASTR 336/HSCI 336 Science, Pseudoscience, and the Two Cultures
BIOL 134/ENVI 134 The Tropics: Biology and Social Issues
CHEM 113 Chemistry and Crime: From Sherlock Holmes to Modern Forensic Science
ENVI 101F Nature and Society: an Introduction to Environmental Studies
ENVI 307/PSCI 317 Environmental Law
ENVI 402/MAST 402 Senior Seminar: Perspectives on Environmental Studies
HIST 374 American Medical History
PHIL 209 Philosophy of Science
PHIL 213T(F) Biomedical Ethics
PHIL 244T(S) Environmental Ethics
SOC 368 Technology and Modern Society

Courses of Related Interest

AMST 216(S) Environmental Humanities: Theory and Practice
ANSO 205 Ways of Knowing
ANTH 271 (F) Medicine, Technology, and Power
ARTH 257 Architecture 1700-1900
ASTR 340 Great Astronomers and Their Publications
BIOL 218T DNA, Life, and Everything
CHEM 115 AIDS: The Disease and Search for a Cure
CSCI: 102T(F) The Socio-Techno Web
ECON 230 The Economics of Health and Health Care
ENGL 286(S) Writing about Science and Nature
ENGL 378(F) Nature/Writing
ENVI 208 Science and Politics in Environmental Decision Making
ENVI 210 Governing Nature
ENVI 302 Environmental Planning Workshop
GEOS 103/ENVI 103 Global Warming and Natural Disasters
GEOS 215 Climate Change
GEOS 226 The Oceans and Climate
HIST 165/LEAD 165 Going Nuclear: American Culture in the Atomic Age
HIST 475/LEAD 475 Modern Warfare and Military Leadership
NSCI 317T Nature v. Nurture: Topics in Developmental Psychology
PHYS 107 Spacetime and Quanta
PHYS 108 Energy Science and Technology
REL 281 Religion and Science
SOC 303(F) Cultures of Climate Change
SOC 300 Measuring Truth
WGSS 238 Science, Gender, and Power

Students can check with the program chair to see if other courses not listed here might count as electives.

STUDY AWAY

You can find general study away guidelines for Science and Technology Studies here.

SCST 101(S) Science, Technology, and Human Values
Crosslistings: SCST 101/HSCI 101/SOC 201
This course offers an introduction to science and technology studies, or STS. A radically interdisciplinary field of inquiry, the roots of STS stretch through the philosophy, history, and sociology/anthropology of science and technology. Students will become acquainted with major STS schools, methodological strategies and research trajectories through intensive reading and analysis of classical and contemporary works in the field. Considerable attention will be devoted to exploring the nature of science and technology, their relationships to and interactions with one another, society and the natural world, and the influences these interactions exert in shaping what humans value. A fundamental goal of the course is to cultivate awareness and understanding of the social organization of technology and scientific knowledge production, and the technoscientific structuring of modern social life broadly. The course as such is aimed at attracting from all divisions those students who are intellectually adventurous and inclined to think critically about the place and prominence of science and technology in the modern world.
Class Format: seminar
Requirements/Evaluation: two or three short exercises, two papers (3-5 pages and 5-7 pages), and two hour exams
Prerequisites: none
Enrollment Preferences: first-years and sophomores
Enrollment Limit: 20-25
Expected Class Size: 20
Distributional Requirements:
Division 2

Spring 2017
SEM Section: 01 TR 08:30 AM 09:45 AM Instructor: Grant Shoffstall

SCST 263 Cold War Technocultures
Crosslistings: SOC 263/AMST 263/HIST 363/HSCI 263/SCST 263
With the Soviet Union's collapse at the end of the twentieth century and the emergence of the United States as an unchallenged victor and "new world" hegemon, have we lost a sense of the drama, fear, and unbridled terror that permeated American life during the Cold War? In this course we will set out to understand Cold War American culture(s) by examining the intersection of politics, aesthetics, and a range of major technoscientific developments during this period. The course will take shape in three parts. Part I will explore the emergence and role of the computer in shaping the distinctly American style of thought aimed at Soviet "containment". We will furthermore trace historical treads connecting MIT's legendary Whirlwind computer, the SAGE continental air defense system, nuclear wargaming at the RAND Corporation, artificial intelligence, and the advanced technologies, management strategies, and atrocities of the Vietnam War. Part II takes up the symbolic potency of the space race, which we will use as a conduit through which to explore the following events and developments: Sputnik, Yuri Gagarin's spaceflight, the Apollo moon landing, and American civil defense; the postwar science of cybernetics and the emergence of the now iconic cyborg; the Club of Rome's *Limits to Growth* report and the Gaia hypothesis; plans backed by NASA for the industrialization, humanization, and colonization of outer space; and Ronald Reagan's Strategic Defense Initiative, "'Star Wars". Finally, case studies considered in Part III will focus on moments of conflict and resistance, appropriation, and unintended consequences of the preceding and other Cold War technological developments, among them antipsychiatry and environmentalism; Project Cybersyn, an infrastructural causality of the US/CIA-backed Chilean coup of 1973; the American counterculture and the countercultural roots of neoliberalism(s).
Class Format: seminar
Requirements/Evaluation: weekly discussion precis, film screenings, class presentations, and a final research project decided in consultation with the instructor
Prerequisites: none
Enrollment Preferences: preference will be given to students with a demonstrated interest in the study of Cold War science and technology
Enrollment Limit: 19
Expected Class Size: 19
Distributional Requirements:
Division 2

Not Offered Academic Year 2017
SEM Instructor: Grant Shoffstall

SCST 309(F) Environmental Politics and Policy (W)
Crosslistings: ENVI 309/HSCI 309/SCST 309/PSCI 301
This course will provide an overview of environmental policy-making, with an emphasis on the ways in which policies are developed and implemented at the local, state and national level. Special attention will be paid to the variety of actors that shape environmental outcomes, including legislators, administrators, the science community, civil society and the private sector. Following an examination of different models of environmental policy-making, this course will focus on several case studies, including on the management of public lands, air and water pollution, climate change and endangered species protection.
Class Format: seminar
Requirements/Evaluation: evaluation is based on several shorter writing assignments, a semester-long research project, and participation
Prerequisites: ENVI 101 or permission of instructor
Enrollment Preferences: Environmental Policy & Environmental Science majors & Environmental Studies concentrators; but other students interested in public policy are welcome

Enrollment Limit: 19
Expected Class Size: 19
Dept. Notes: required course for the Environmental Policy major and the Environmental Studies concentration
Distributional Requirements:
Division 2
Writing Intensive
Other Attributes:
ENVI Environmental Policy
ENVP PTL Theory/Method Courses
ENVP PE-A Group Electives
ENVP PTL-A Group Electives
ENVP SC-A Group Electives
POEC Comparative POEC/Public Policy Courses

Fall 2016
SEM Section: 01 Cancelled Instructor: Pia Kohler

SCST 330 Technology, Culture and Society
Crosslistings: SOC 330/SCST 330
An introduction to major trajectories of theory and empirical research in the sociology and history of technology: the Social Construction of Technology (SCOT), Large Scale Technological Systems (LTS), Actor-Network Theory (ANT), and cultural studies of technoscience broadly. Students will also become acquainted with a number of philosophical positions on technology: instrumentalist, Marxist, cultural/ substantivist, humanist and posthumanist. Topics to be explored include technology, (post)industrial capitalism, and the nature of modern power; the role of technology in giving shape and weight to social institutions and forms of agency; technology, individualism, and everyday life in the modern world; technological determinism; resistance and accommodation to technological change; technology as a point of view and total way of life (culture); language, quantification, computerization, and (tele)visual media; and technology and environment. The course is furthermore designed to allow students to explore and research topics not appearing on the syllabus in the main.
Class Format: seminar
Requirements/Evaluation: weekly discussion precis, class presentations, a midterm essay and final paper
Extra Info: may not be taken on a pass/fail basis
Prerequisites: none
Enrollment Preferences: Anthropology and Sociology majors
Enrollment Limit: 20
Expected Class Size: 20
Distributional Requirements:
Division 2

Not Offered Academic Year 2017
SEM Instructor: Grant Shoffstall

SCST 371(S) Medicine, Technology, and Modern Power
Crosslistings: SOC 371/HSCI 371/SCST 371
Medicalization: those processes by which previously *non*-medical problems, once defined as ethical-religious, legal or social (e.g. drug and alcohol addition, shyness, obesity), are brought within the purview of medical science and redefined as medical problems, usually in terms of "illness" or "disorder." Part I: The history of the medicalization thesis; medicalization as a technical process; modern medicine as a form of social control; critiques of the medicalization thesis. Part II: From medicalization to biomedicalization; from the management of human life to the transformation of "life itself" by way of post-World War II technoscientific interventions aimed at "optimizing" human vitality. Empirical cases for consideration will be drawn from those technoscientific developments having made possible the work of optimization that defines biomedicalization: molecular biology, pharmacogenomics, biotechnologies, imaging techniques, robotics, and transplant medicine, among others. Finally, a consideration of how processes of biomedical optimization have produced new ways of seeing, knowing, and imagining human bodies, such that biology is increasingly less representative of "destiny" than it is of possibility. The course will to this end conclude with a survey of emerging issues in speculative technoscience and the ethics and politics of human enhancement.
Class Format: lecture
Requirements/Evaluation: weekly discussion précis, science-fiction book review essay, class presentations, and a take-home midterm
Extra Info: may not be taken on a pass/fail basis
Prerequisites: none
Enrollment Preferences: preference will be given to Anthropology and Sociology students
Enrollment Limit: 25
Expected Class Size: 20-25
Distributional Requirements:
Division 2
Other Attributes:
PHLH Bioethics + Interpretations of Health

Spring 2017
LEC Section: 01 MWF 08:30 AM 09:45 AM Instructor: Grant Shoffstall

SCST 401(F) Senior Seminar: Critical Perspectives on Science and Technology
A research-oriented course designed to give students direct experience in evaluating and assessing scientific and technological issues. Students initially study particular techniques and methodologies by employing a case study approach. They then apply these methods to a major research project. Students may choose topics from fields such as biotechnology, computers, biomedical engineering, energy, and other resource development. Students will apply their background of historical, philosophical, and technological perspectives in carrying out their study.
Class Format: studio
Requirements/Evaluation: research paper or project
Enrollment Limit: 5
Distributional Requirements:
Division 2
Other Attributes:
ENVP SC-B Group Electives

Fall 2016
SEM Section: 01 TBA