Colby

SCIENCE, TECHNOLOGY, AND SOCIETY

Director, *Professor James Fleming*
Advisory Committee: *Professors Daniel Cohen (Philosophy), James Fleming (Science, Technology, and Society), Fernando Gouvêa (Mathematics and Statistics), Paul Josephson (History), Laurie Osborne (English), Leonard Reich (Administrative Science and Science, Technology, and Society), and Dale Skrien (Computer Science); Associate Professors Jonathan Hallstrom (Music), Laura Saltz (American Studies), Judy Stone (Biology), and Andrea Tilden (Biology); Assistant Professors Matthew Archibald (Sociology), Chandra Bhimull (Anthropology and African-American Studies), and Keith Peterson (Philosophy); Visiting Assistant Professor Britt Halvorson (Anthropology); Faculty Members without Rank Lauren Lessing (Museum of Art) and Elizabeth Finch (Museum of Art)*

Science, Technology, and Society (STS) is an exciting interdisciplinary field of study grounded in the history, philosophy, anthropology, and sociology of science and technology. It examines deep cultural roots of our technoscientific society and addresses pressing public policy issues. It constitutes a fundamental aspect of a liberal arts education and is excellent preparation for graduate study or future employment opportunities.

Science and technology have become increasingly important components of our world, changing the ways we live, work, and think. The well-being of individuals, nations, and ultimately our Earth depends in part on technoscientific developments that are part of the process shaping both the social fabric and the natural environment, both in America and globally.

Following an introductory core course, students in the STS Program choose from a variety of electives and complete a year-long senior research project. By doing so they gain an understanding of the historical and social dimensions of science and technology, become better-informed citizens of our high-tech society, and hone critical and valuable interdisciplinary skills involving writing, speaking, and creative thinking. Students pursuing a major or minor in STS require no special technical expertise.

Requirements for the Major in Science, Technology, and Society

The STS major has a core curriculum based on the research and teaching interests of the faculty. All courses are either U.S. or internationally focused and either science or technology focused. Majors must take three required courses and choose a minimum of eight electives from the list of STS-approved courses below. Courses taken abroad or otherwise not on this list require the approval of the STS Program director.

- ST 112: Introduction to STS (required)
- ST 485: Technology Matters or ST 483 Honors (required)
- ST 486: Senior Project: The Craft of Research or ST 484 Honors (required)
- One 200-level or higher course in natural science or computer science beyond the all-college requirement
- One STS internationally-focused course (designated I)
- One STS U.S.-focused course (designated U)
- One STS science-focused course (designated S)
- One STS technology-focused course (designated T)
- Three approved STS electives

Electives are chosen from the list of STS approved courses to fulfill the I, U, S, and T foci, but a course that satisfies two or more foci may not be counted twice. In choosing the eight electives, students must take a minimum of three courses designated or cross-listed as ST. A student may not count more than two 100-level electives toward the major.

Senior Projects

All senior STS majors will take ST 485, which will prepare them for research through seminar readings, literature reviews, and proposal writing. This is the first part of a yearlong capstone experience in which students design and complete a final integrative project in science, technology, and society. This is followed by ST 486, an intensive research and writing experience with final public presentations. Any member of the faculty may serve as an advisor for STS senior projects.

Honors in Science, Technology, and Society

Students with a 3.5 GPA in the major (and at least 3.25 GPA overall) may request permission to undertake an honors thesis. They will enroll in ST 483 and meet with other STS seniors to prepare a literature review and proposal, which must be approved by a panel of faculty members. Students continuing in the honors program will enroll in ST 484 under the supervision of an advisor and second reader. Upon successful completion of the thesis and fulfillment of all requirements for the major, and, if a 3.5 GPA in the major is maintained, the student will be invited to deposit a copy of his or her thesis in Miller Library and will graduate “With Honors in Science, Technology, and Society.”

Requirements for the Minor in Science, Technology, and Society

Science, Technology, and Society 112, 485, 486, two other STS courses, and at least two courses from the list of STS approved courses.

List of STS Approved Courses

* Key: International = I; U.S. = U; Science = S; Technology = T

Anthropology

- 112 Cultural Anthropology I
- 256 Land, Food, Culture, and Power I
- 298B Anthropological Perspective on Science and Religion I
- 341 Culture, Mobility, Identity I

Art

- 285 History of Photography I, T

Biochemistry

- 362 Medical Biochemistry S

Biology

- 115 Biology of Women U, S
- 133 Microorganisms and Society U, S
- 164 Evolution and Diversity S
- 274 Neurobiology S
- 275 Mammalian Physiology S

Chemistry

- 112 Chemistry for Citizens U, S
- 217 Environmental Chemistry S

Computer Science

- 232 Computer Organization T

Economics

- 231 Environmental and Natural Resource Economics U
- 341 Natural Resource Economics U, S

Environmental Studies

- 118 Environment and Society U
- 234 International Environmental Policy I
- 265 Global Public Health I
- 271 Introduction to Ecology S
- 319 Conservation Biology S
- 366 Environment and Human Health I, T
- 494 Problems in Environmental Science S

History

- 245 Science, Race, and Gender S
- 246 Luddite Rantings U, I, T
- 364 Environmental and Health History in Africa I, S
- 394 Ecological History I, S
- 445 Nuclear Madness I, U, T
- 446 Global Health History I, S

Mathematics

- 376 History of Mathematics S

Philosophy

- 126 Philosophy and the Environment U, S
- 213 Philosophical Inquiries into Race I, S
- 217 Feminism and Science S
- 317 Philosophy of Science S
- 318 Philosophy of Nature S

Psychology

- 233 Biological Basis of Behavior S

Science, Technology, and Society

- 112 Science, Technology, and Society (required)
- 175 Science in Ancient Greece I, S
- 215 Weather, Climate, and Society I, U, S, T
- 253 Energy, Power, and the American Century, 1901-2001 U,T
- 271 History of Science in America U, S
- 297 Historical Frontiers of Science and Ethics U, S
- 358 Climbing the Oil Peak I, T
- 483 and 484 Honors in STS
- 485 Technology Matters (required)
- 486 Senior Project: The Craft of Research (required)
- 491/492 Independent Study

Sociology

- 256 Global Health I
- 258 Health and Medicine U
- 261 Sociology of Organizations U
- 361 Substance Use and Abuse U

Course Offerings

ST112f Science, Technology, and Society Critical perspectives on the social aspects of science and technology in our lives, in the world around us, and throughout history. Issues include gender, communications, war, and the environment. *Four credit hours.* **S,W1** FLEMING

[ST175] Science in Ancient Greece Ancient Greek theories about the natural world began in wonder about its constituent elements. But as the Greeks acquired a philosophically sophisticated understanding of the nature of scientific explanations, their speculation soon gave way to the conceptual rigor of Aristotelian physics, the technical and encyclopedic accomplishments of Hippocratic medicine, and the mathematical exactitude of Ptolemaic astronomy. Fosters the skills needed for historical contextualization and textual interpretation, enabling us to trace the development of what became the foundations of Western scientific thinking. Part of the three-course Integrated Studies 175 cluster, "Ancient Greece: Nature and Culture in Classical Athens." *Prerequisite:* Concurrent enrollment in Anthropology 175 and Philosophy 175. (elect IS175.) *Four credit hours.* **H**

ST197j Science, Technology, and the Cultural Cold War An exploration of the role of science and technology in the political, cultural, and social landscapes of postwar America. Highlights ideas about how science and technology motivated foreign and domestic policy decisions, impacted education and military spending, and were appropriated in postwar consumer society, design, and popular culture. Students learn to discuss fundamental themes in Science, Technology, and Society using examples drawn from the nuclear age, the space program, the environmental movement, and modern medicine, and hone their analytic, writing, and speaking skills. *Three credit hours.* MUIR-HARMONY

[ST215] Weather, Climate, and Society A scientific introduction to the Earth's atmosphere and historical and social issues related to weather and climate. Topics include the atmosphere's composition, structure, and dynamics; air pollution, ozone depletion, natural disasters, and climate change. Includes lectures, an exam, quizzes, short essays, and a group project to be presented in a final poster session. *Four credit hours.* **N**

ST217f Feminism and Science Listed as Philosophy 217. *Four credit hours.* **S, U** PETERSON

ST245s Science, Race, and Gender Listed as History 245. *Four credit hours.* **H, U** JOSEPHSON

[ST246] Luddite Rantings: A Historical Critique of Big Technology Listed as History 246. *Four credit hours.* **H**

[ST253] Energy, Power, and the American Century, 1901-2001 A study of the development and use of energy sources in the United States during the 20th century, from the discovery of oil in Texas to the attack of Sept. 11, 2001, with emphasis on economic, political, military, social, and environmental factors. Students will gain an understanding of how our nation's evolving energy systems have brought us extraordinary strength and abundance but also have led to entangling military commitments and environmental problems while making us dependent on forces beyond our control. *Prerequisite:* Sophomore or higher standing. *Four credit hours.*

[ST256] Global Health Listed as Sociology 256. *Four credit hours.*

ST258f Health and Medicine Listed as Sociology 258. *Four credit hours.* ARCHIBALD

ST261s Sociology of Organizations Listed as Sociology 261. *Four credit hours.* **S** ARCHIBALD

ST271f History of Science in America A seminar on the social, intellectual, and institutional development of science in America from native contact to the present. Topics include scientists' roles in government, education, and industry; science in war; women in science; and the emergence of America as a leading scientific nation. *Four credit hours.* **H** FLEMING

ST285f History of Photography Listed as Art 285. *Four credit hours.* **A** CLARK

[ST317] Philosophy of Science Listed as Philosophy 317. *Four credit hours.*

ST318f Philosophy of Nature Listed as Philosophy 318. *Four credit hours.* PETERSON

ST341f Culture, Mobility, Identity: Encounters in the African Diaspora Listed as Anthropology 341. *Four credit hours.* **S, I** BHIMULL

[ST358] Climbing the Oil Peak Societies worldwide have been exploiting greater and greater quantities of petroleum for more than 100 years, which has helped make us tremendously wealthy and dramatically changed our expectations and values. Examines the history of petroleum development since the early 20th century and issues confronting us as we approach the worldwide peak in oil production. This task comprises science, technology, economics, sociology, agriculture, and government, as well as military, environmental, and human-rights issues. Includes an examination of society-wide ramifications of the coming peak in oil production and considers viable alternatives to oil in decades ahead. Credit cannot be earned for both this course and ST356. *Prerequisite:* Junior standing. *Four credit hours.* **S**

ST361j Special Topics in Health and Medicine: Substance Use and Abuse Listed as Sociology 361. *Three credit hours.* ARCHIBALD

ST364s Environmental and Health History in Africa Listed as History 364. *Four credit hours.* **H, I** WEBB

[ST445] Nuclear Madness Listed as History 445. *Four credit hours.* **H**

[ST446] Research Seminar: Global Health History Listed as History 446. *Four credit hours.* **H**

ST484s Honors in Science, Technology, and Society Majors may apply late in their junior year or early in their senior year for admission into the Science, Technology, and Society Honors Program. These courses require research conducted under the guidance of a faculty member and focused on an approved topic leading to the writing of a thesis. *Prerequisite:* Senior standing, a 3.50 grade point average in the major, a 3.25 overall grade point average, and permission of the department. *Four credit hours.* FACULTY

ST485f Technology Matters Seminar emphasizing classical, enduring issues involving the social study of science and technology. A senior capstone in preparation for a career. Students design, propose, and initiate a year-long project through broad reading, seminar discussions, written think pieces, a book review, thorough literature search, and preparation of a proposal and exploratory essay. Completion, typically in the spring but including a possible January internship, requires intensive research, writing, and presentation at a public seminar. Research funding may be available. Goal is to complete a project the student finds exciting and challenging and that will solidify her/his ability to conduct interdisciplinary research. *Prerequisite:* Senior standing. *Four credit hours.* FLEMING

ST486s Senior Project: The Craft of Research Written and oral communication of research. Students complete a final integrative project and present a public seminar. *Prerequisite:* Science, Technology, and Society 485. *Four credit hours.* FLEMING

ST491f, 492s Independent Study Independent study in areas in which the student has demonstrated the interest and competence necessary for independent work. *Prerequisite:* Permission of the instructor and the program director. *One to four credit hours.* FACULTY