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), Neil Gross (Sociology), Russell Johnson (Biology), Paul Josephson (History), Dale Skrien (Computer Science), Judy Stone (Biology), and Dasan Thamattoor (Chemistry); Associate Professors Chandra Bhimull (Anthropology and African-American Studies), Melissa Glenn (Psychology), Jonathan Hallstrom (Music), Keith Peterson (Philosophy), Elizabeth Sagaser (English), Laura Saltz (American Studies), Tanya Sheehan (Art), and Andrea Tilden (Biology); Assistant Professors Aaron Hanlon (English), and Gianluca Rizzo (French and Italian); 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 yearlong 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.

- ST112: Introduction to STS (required)
- ST485: Technology Matters (required)
- ST486: Senior Project: The Craft of Research or ST484 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 ST485, 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 ST486, 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 a 3.25 GPA overall) may request permission to undertake an honors thesis. They will enroll in ST485 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 ST484 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, three 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
- 341 Culture, Mobility, Identity I

**Art**
- 252 Medicine and Visual Culture U, S
- 285 History of Photography I, T
- 454 Picturing Nature: American Art and Science U, S

**Biochemistry**
- 362 Medical Biochemistry S

**Biology**
- 133 Microorganisms and Society U, S
- 164 Evolution and Diversity S
- 259 Plants of the Tropics I, S
- 271 Introduction to Ecology S
- 274 Neurobiology S
- 275 Human Physiology S

**Chemistry**
- 217 Environmental Chemistry S

**Computer Science**
- 151 Computational Thinking; Science T
- 232 Computer Organization T

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

**English**
- 262 Poetry of Revolution I
- 233 Data and Literature in the Scientific Revolution I, S

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

**German**
- 263 Weird Fictions I

**History**
- 245 Science, Race, and Gender S
- 246 Luddite Rantings: A Historical Critique of Big Technology U, I, T
- 248 Nuclear Visions, Environmental Realities I, U, T
- 346 Global Health History I, S
- 354 Skin-scapes: Beauty, Skin, and Cosmetics in East Asian History I, T
- 394 Ecological History I, S

**Mathematics**
- 376 History of Mathematics I, 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
• 328 Radical Ecologies S

Psychology
• 233 Biological Basis of Behavior S

Russian
• 232 Science Fiction in the Great Utopia I

Science, Technology, and Society
• 112 Science, Technology, and Society (required)
• 117 Information Use and Misuse: Big Data in America U, T
• 132 Origins: Order v. Chaos
• 215 Weather, Climate, and Society I, U, S, T
• 232 Seminar: Origins I, U, S, T
• 297 History of Biology I, S
• 484 Honors in STS
• 485 Technology Matters (required)
• 486 Senior Project: The Craft of Research (required)
• 491/492 Independent Study

Sociology
• 131 Introduction to Sociology U
• 247 Universal Health Care: Could It Work Here? I, U
• 249 Life Sciences and Society U, S

Course Offerings

ST112s 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. FLEMING

ST112Ws Science, Technology, and Society (Writing-intensive) 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. Prerequisite: First-year standing. Four credit hours. S, W1. FLEMING

ST117j Information Use and Misuse: Big Data in America Examination of "big data" collection and mining; how the U.S. government and businesses utilize our personal, geographic, and behavioral data; and the impact on our society and government. Overview of governing policies and laws, collection technologies, and public and private use. Considers big data's impact on our everyday lives and privacy and what it means to be information literate. Discussion based. Students develop critical thinking and writing skills and understanding of the policies, terminologies, and concepts needed to examine the topic and related case studies. Previously listed as GO118 (Jan Plan 2016). Three credit hours. KUGELMEYER

[ST120] Cognitive Science of Religion Religion is deeply puzzling from the perspective of evolutionary biology. The practice of religion takes time and energy, and yet it does not have any clear adaptive benefits: evolutionarily, gathering food is more rewarding than kneeling in prayer. So, how did religion become a universal if it is so costly? We explore both the psychology of religion and recent attempts to understand its evolutionary history. Four credit hours. S, W1.

ST120As Information Before and After Google: Impacts and Technologies Explores the nature of information and how technology has changed our experience and understanding of it over the past 75 years. Emphasizes the relationship between information and technology and explores the impact of information technologies on societies, organizations, and people. Participants explore how people understand and evaluate information and in what contexts information is valued and why. Students will develop and improve their understanding, critical thought processes, and analytic skills around a range of information technologies. Class format is discussion based, and the focus is on developing scholarly writing skills. Four credit hours. W1. KUGELMEYER

ST132f Origins: Order v. Chaos Focuses on origins in their many forms — political, literary, artistic, cultural, social, scientific, and
conceptual. Involves public lectures by visiting scholars and Colby faculty representing many disciplines, with focused discussion and required short weekly student reflection papers posted on the course weblog. Non-graded. May be taken for credit a total of four times. **Origins theme course.**  

**ST213s**  
**Introduction to Computer Music**  
Listed as Music 213.  
*Four credit hours.*  
FLEMING, RIZZO

**[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. **Prerequisite:** Concurrent registration in Science, Technology, and Society 132.  
*Four credit hours.*  
N.

**ST216s**  
**Philosophy of Nature**  
Listed as Philosophy 216.  
*Four credit hours.*  
PETERSON

**[ST217]**  
**Feminism and Science**  
Listed as Philosophy 217.  
*Four credit hours.*  
S, U.

**ST218s**  
**Seminar: Origins**  
Involves readings, seminar discussions, presentations, a required poster (to be presented as the final event in the co-requisite Science, Technology, and Society 132) and a final research paper. Schedules permitting, the ST132 speakers will be invited to participate in the seminar discussions. Open to first-year students. **Prerequisite:** Concurrent registration in Science, Technology, and Society 132.  
*Three credit hours.*  
FLEMING

**ST219s**  
**Biological Basis of Behavior**  
Listed as Psychology 233.  
*Four credit hours.*  
BUCCIGROSSI

**ST220s**  
**Science, Race, and Gender**  
Listed as History 245.  
*Four credit hours.*  
JOSEPHSON

**[ST221]**  
**Luddite Rantings: A Historical Critique of Big Technology**  
Listed as History 246.  
*Four credit hours.*  
H, U.

**ST222s**  
**Universal Health Care: Could It Work Here?**  
Listed as Sociology 247.  
*Four credit hours.*  
S, AVILES

**ST223s**  
**Nuclear Visions, Environmental Realities**  
Listed as History 248.  
*Four credit hours.*  
JOSEPHSON

**ST224s**  
**Life Sciences and Society**  
Listed as Sociology 249.  
*Four credit hours.*  
S, AVILES

**[ST225]**  
**Medicine and Visual Culture**  
Listed as Art 252.  
*Four credit hours.*  
A.

**[ST226]**  
**Plants of the Tropics**  
Listed as Biology 259.  
*Three credit hours.*

**ST227fs**  
**Weird Fictions (in English)**  
Listed as German 263.  
*Four credit hours.*  
L, ELLIS

**ST228fs**  
**History of Photography**  
Listed as Art 285.  
*Four credit hours.*  
SALTZ

**ST229 Jj**  
**World History of Biology**  
Examines the emergence and development of life sciences since 1700 by introducing major ideas, approaches, and debates about life as well as their material and cultural underpinnings and social impacts. Discussion focuses on the various understandings, modifications, and representations of them in different nations and cultures in the 20th and 21st centuries. Students will develop skills in discussion, analysis, research, writing, and presentation.  
*Three credit hours.*  
H, JIANG

**[ST230]**  
**Philosophy of Science**  
Listed as Philosophy 317.  
*Four credit hours.*

**[ST231]**  
**Culture, Mobility, Identity: Encounters in the African Diaspora**  
Listed as Anthropology 341.  
*Four credit hours.*  
S, I.

**ST232fs**  
**Global Health History**  
Listed as History 346.  
*Four credit hours.*  
WEBB

**[ST233]**  
**Special Topics in Health and Medicine: Substance Use and Abuse**  
Listed as Sociology 361.  
*Three credit hours.*

**ST234f**  
**Ecological History**  
Listed as History 394.  
*Four credit hours.*  
H, WEBB

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ST484s  Honors in Science, Technology, and Society  Majors may apply for admission in December of their senior year by preparing and defending an honors proposal. The honors program requires focused research conducted under the guidance of a faculty member, leading to the writing of a thesis approved by the advisor and a second reader.  

Prerequisite: Senior standing, a 3.50 grade point average in the major, a 3.25 overall grade point average, successful completion of Science, Technology, and Society 485, and permission of the program faculty.  Four credit hours.

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 and a W1 course.  Four credit hours.  W3.

FLEMING

ST486s  Senior Project: The Craft of Research  Written and oral communication of research. Students complete a final integrative project and present three public seminars.  

Prerequisite: Science, Technology, and Society 485.  Four credit hours.  FLEMING

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