

SCIENCE, TECHNOLOGY, & SOCIETY (STS)

STS 1. The Public Life of Science and Technology. 4 Units.

The course focuses on key social, cultural, and values issues raised by contemporary scientific and technological developments. The STS interdisciplinary lens helps students develop and apply skills in three areas: (a) Historical analysis of contemporary global affairs (e.g., spread of technologies; responses to climate change); (b) Bioethical reasoning around health issues (e.g., disease management; privacy rights); and (c) The sociological study of knowledge (e.g., intellectual property, science publishing). A discussion section is required. Discussion sections meet once per week immediately after lecture. International time zone students are encouraged to fill out the following Google Form: <https://tinyurl.com/STS1-Timezone>.

Same as: CSRE 1T

STS 123. Making of a Nuclear World: History, Politics, and Culture. 4 Units.

Nuclear technology has shaped our world through its various applications (e.g., weapons, energy production, medicine) and accidents and disasters (e.g., Chernobyl, Three Mile Island, Fukushima). This course will examine the development of nuclear technology and its consequences to politics and culture at the global, national, regional and local levels from interdisciplinary perspectives. Some of the key questions addressed are: How did different countries and communities experience and respond to the 1945 bombings of Hiroshima and Nagasaki? How did such experiences affect the later development of the technology in different national contexts? How have nuclear tests and disasters change the ways in which risks are understood and managed globally and locally? What kinds of political activism, international arrangements, and cultural tropes and imageries emerged in response to nuclear technology? We explore these questions through key works and recent studies in history, anthropology, sociology, and science and technology studies, as well as through films and literature.

STS 151. The Future of Information. 4 Units.

As information has a fascinating history (see HISTORY 5A), so it possesses a promising if concerning future. Through lecture, demonstration, online modules, and in-class web-work, this course will provide students with advanced strategies in (a) identifying sources and tools for advancing the quest for information; (b) assessing elements of trust, authority, and chicanery in the provision of information; (c) recognizing the economic and legal structures shaping information sources, services, and rights; and (d) discovering who is behind what information. With a focus on the info-worlds of journalism, learning, governance, students will acquire and practice the forensic skills and web savvy of fact-checkers and investigative reporters, activists and scholars. Here's a class set to determine the future course of information. The class will be a hybrid course, combining in-class delivery of materials, with a number of classes involving students taking online modules (at their convenience) that are designed to teach information literacy skills. Same as: EDUC 151

STS 166. Knowledge and Information Infrastructures. 3-4 Units.

This course introduces historical, theoretical, and comparative perspectives on knowledge and information systems from the medieval world to the present. Cases include libraries, meteorology, climate science, the Internet, the World Wide Web, and social science data systems. It theorizes how infrastructures form, how they change, and how they shape (and are shaped by) social systems. The course ends with challenges to modern knowledge infrastructures, such as crowdsourcing, citizen science, and alternative and bogus knowledge. Same as: HISTORY 242D

STS 177. The Cultural Politics of Food and Eating: Technology, History, and Justice. 4-5 Units.

This course will examine our everyday food practices as a site of politics where culture, technology, history, and issues of ethics and justice intersect. Through a survey of academic, journalistic, and artistic works on food and eating, the course will explore a set of key analytical frameworks and conceptual tools in STS, such as the politics of technology, classification and identity, the reproduction of inequality, and nature/culture boundaries. The topics covered include: the industrialization of agriculture; globalization and local foodways; food justice and ethics; new technologies in food practices (e.g., biotechnology, delivery apps); health and diet trends; and food and global challenges (e.g., climate change, COVID-19). Through food as a window, the course intends to achieve two broad intellectual goals. First, students will explore various theoretical and methodological approaches in STS and related fields (e.g., anthropology, history, sociology). Second, student will develop a set of basic skills and tools for their own critical thinking and empirical research, and design and conduct independent research on a topic related to food.

STS 181. Techno-metabolism: Technology, Society, and the Anthropocene. 3-4 Units.

In the Anthropocene epoch, humanity has become a geological force. As the sum of all technological systems and their human components, the technosphere metabolizes energy, materials, and information. Techno-metabolism's waste products- greenhouse gases, microplastics, nuclear waste, etc. - are transforming the biosphere and the geosphere, with radically different effects on disparate peoples and places. Scientists, historians, and others have proposed new ways to conceptualize techno-metabolism in order to reduce energy requirements and material waste. Meanwhile, "data exhaust" - the "waste" data generated by individual activity, from web searches to Facebook and Instagram - is increasingly "recycled" to detect patterns, trends, and individual preferences. In this project-centered course, students will seek creative ways to visualize, understand, and change the interplay of energy, materials, information, and waste. Assignments include reading logs and a term-long group project.

STS 190. Environment and Society. 4 Units.

Humans have long shaped and reshaped the natural world with science and technology. Once a menacing presence to conquer or an infinite reserve for resources, nature is now understood to require constant protection from damage and loss. Global challenges such as climate change have been further forcing us to reconsider our fundamental ideas not only about nature, but also about ethics and justice. This course will examine humanity's varied relationships with the environment, with a focus on the role of science and technology. Topics include: industrialization and modernism, diversity in environmentalism, environmental justice and inequalities, climate politics, global-local tensions, nuclear technology, the Anthropocene debate, and COVID-19 and the environment. Students will explore theoretical and methodological approaches in STS and related fields in social sciences, and conduct original research that engages with environmental issues of their choice. Enrollment limited to juniors and seniors, or with consent of instructor.

STS 191. Doing STS: Introduction to Research. 4 Units.

This seminar introduces key analytical approaches and methodologies in STS, as well as basic tools for designing and conducting original research in STS. Students survey a series of influential studies in STS; identify productive questions of their own interest; and explore how to pursue them through strong research design. By completing smaller writing assignments throughout the quarter, you will produce a fully developed research proposal as final assignment. This final proposal can serve as an honors prospectus for students who seek to participate in the STS honors program. First week attendance mandatory.

STS 191W. Doing STS: Introduction to Research. 4 Units.

This seminar introduces key analytical approaches and methodologies in STS, as well as basic tools for designing and conducting original research in STS. Students survey a series of influential studies in STS; identify productive questions of their own interest; and explore how to pursue them through strong research design. By completing smaller writing assignments throughout the quarter, you will produce a fully developed research proposal as final assignment. This final proposal can serve as an honors prospectus for students who seek to participate in the STS honors program. First week attendance mandatory.

STS 198. Independent Research. 1-5 Unit.

Independent research. Student develops own project with supervision by an STS faculty affiliate. Students must email Prof. Edwards with brief project description and name of faculty supervisor. May be repeated for credit.

STS 199. Independent Study. 1-5 Unit.

Every unit of credit is understood to represent three hours of work per week per term and is to be agreed upon between the student and the faculty member. Instructor consent required. Please contact the department for a permission number.

STS 199A. Curricular Practical Training. 1 Unit.

Students obtain internship in a relevant research or industrial activity to enhance their professional experience consistent with their degree program and area of concentration. Prior to enrolling students must get internship approved by the STS Program Director. At the end of the quarter, a one-page final report must be supplied documenting work done and relevance to degree program. Meets the requirements for Curricular Practical Training for students on F-1 visas. Student is responsible for arranging own internship. Limited to declared STS majors only. Course may be repeated twice. Instructor consent required. Please contact the department for a permission number.

STS 199J. Editing a Science Technology and Society Journal. 1-2 Unit.

The Science Technology and Society (STS) Program has a student journal, *Intersect*, that has been publishing STS student papers for a number of years. This course involves learning about how to serve as an editor of a peer-reviewed journal, while serving as one of the listed editors of *Intersect*. Entirely operated online, the journal uses a work-flow management to help with the submission process, peer-review, editing, and publication. Student editors learn by being involved in the publishing process, from soliciting manuscripts to publishing the journal's annual issue, while working in consultation with the instructor. Students will also learn about current practices and institutional frameworks around open access and digital publishing.

STS 200A. Food and Society: Politics, Culture and Technology. 5 Units.

This course will examine how politics, culture, and technology intersect in our food practices. Through a survey of academic, journalistic, and artistic works on food and eating, the course will explore a set of key analytical frameworks and conceptual tools in STS, such as the politics of technology, classification and identity, and nature/culture boundaries. The topics covered include: the industrialization of agriculture; technology and the modes of eating (e.g., the rise of restaurants); food taboos; globalization and local foodways; food and environmentalism; and new technologies in production (e.g., genetically modified food). Through food as a window, the course intends to achieve two broad intellectual goals. First, students will explore various theoretical and methodological approaches in STS. In particular, they will pay particular attention to the ways in which politics, culture, and technology intersect in food practices. Second, student will develop a set of basic skills and tools for their own critical thinking and empirical research, and design and conduct independent research on a topic related to food. First class attendance mandatory. STS majors must have Senior status to enroll in this Senior Capstone course.

STS 200F. Sociology of Innovation and Invention. 5 Units.

This course examines the social, cultural, and economic factors that foster novelty. We will study a wide array of historical contexts, from the Renaissance to the present day, in which clusters of related innovations transformed the way things are done. We ask when do such innovations cascade out and produce social inventions that, for good and bad, create profound changes in how things are done, leading to new forms of organizations and new categories of people. Seminar/lecture format, reading intensive, final term paper. Prerequisite: admission to the course is restricted to declared STS seniors and is by application only. Email Emily Van Poetsch (emilyvp@stanford.edu) for an application. Applications must be submitted by 5pm on November 1st.

STS 200L. Critique of Technology. 3-5 Units.

Informed citizens living in today's world, and especially in Silicon Valley, should be able to formulate their own articulate positions about the role of technology in culture. The course gives students the tools to do so. Against the trend towards the thoughtless celebration of all things technological, we will engage in critique in the two senses of the term: as careful study of the cultural implications of technology and as balanced, argumentative criticism. Can technology make life more meaningful, society more fair, people smarter, and the world smaller? We will pay special attention to the insights that literature, and other arts, can offer for reframing digital culture. Selections by Latin American fiction writers (Cortázar, Zambra), philosophers and thinkers (Heidegger and Beller), as well as recent popular works of social commentary, such as *You are not a Gadget*, *The Shallows*, *24/7*, and *Present Shock*. Taught in English.

STS 200M. Tobacco and Health in World History. 4-5 Units.

Cigarettes are the world's leading cause of death—but how did we come into this world, where 6 trillion cigarettes are smoked every year? Here we explore the political, cultural, and technological origins of the cigarette and cigarette epidemic, using the tobacco industry's 80 million pages of secret documents. Topics include the history of cigarette advertising and cigarette design, the role of the tobacco industry in fomenting climate change denial, and questions raised by the testimony of experts in court.

STS 200N. Funkentelechy: Technologies, Social Justice and Black Vernacular Cultures. 5 Units.

From texts to techne, from artifacts to discourses on science and technology, this course is an examination of how Black people in this society have engaged with the mutually constitutive relationships that endure between humans and technologies. We will focus on these engagements in vernacular cultural spaces, from storytelling traditions to music and move to ways academic and aesthetic movements have imagined these relationships. Finally, we will consider the implications for work with technologies in both school and community contexts for work in the pursuit of social and racial justice.

Same as: AFRICAAM 200N, EDUC 314

STS 200P. Leonardo's World: Science, Technology and Art. 4-5 Units.

Leonardo da Vinci is emblematic of creativity and innovation. His art is iconic, his inventions legendary. His understanding of nature, the human body, and machines made him a scientist and engineer as well as an artist. This class explores the historical Leonardo, exploring his interests and accomplishments as a product of the society of Renaissance Italy. Why did this world produce a Leonardo? Students will contribute to a library exhibit for the 500th anniversary of Leonardo's death in May 2019. This is an STS capstone seminar intended primarily for STS majors.

STS 200Q. Sociology of Science. 3-4 Units.

The sociology of science concerns the social structures and practices by which human beings interpret, use and create intellectual innovations. In particular we will explore the claim that scientific facts are socially constructed and ask whether such a characterization has limits. Course readings will concern the formation and decline of various thought communities, intellectual social movements, scientific disciplines, and broader research paradigms. A special focus will be placed on interdisciplinarity as we explore whether the collision of fields can result in new scientific advances. This course is suitable to advanced undergraduates and doctoral students.

Same as: EDUC 120, EDUC 320, SOC 330

STS 200T. Racial Justice in the Nuclear Age. 5 Units.

This upper-level course explores the history of radioactive contamination in the Bay Area and elsewhere. We'll examine the legacy of atomic bomb testing in our region and the current political implications of that legacy. We'll then explore the colonial and postcolonial dimensions of the nuclear age and the long-term contamination it has produced. Case studies vary yearly; they include uranium mining in Africa, nuclear testing in the Pacific, and accidents at Chernobyl and Fukushima. At least one field trip!

Same as: HISTORY 203F

STS 200U. The Age of Plague: Medicine and Society, 1300-1750. 5 Units.

(Undergraduates, enroll in 234P. Graduates, enroll in 334P) The arrival of plague in Eurasia in 1347-51 affected many late medieval and early modern societies. It transformed their understanding of disease, raised questions about the efficacy of medical knowledge, and inspired new notions of public health. This class explores the history of medicine in the medieval Islamic and European worlds. Changing ideas about the body, the roles of different healers and religion in healing, the growth of hospitals and universities, and the evolution of medical theory and practice will be discussed. How did medicine and society change in the age of plague?.

Same as: HISTORY 234P

STS 298. STS Honors Meeting. 1 Unit.

This is a required monthly meeting for STS Honors students.

STS 299. Advanced Individual Work. 1-5 Unit.

For students in the STS Honors program. Every unit of credit is understood to represent three hours of work per week per term and is to be agreed upon between the student and the faculty member. May be repeated for credit.

STS 51A. Race in Science. 1 Unit.

What are the roles of race and racism in science, technology, and medicine? 3-course sequence; each quarter can be taken independently. Fall quarter focuses on science. What is the science of race and racism? How does race affect scientific work? Weekly guest speakers will address such issues as the psychology and anthropology of race and racism; how race, language, and culture affect education; race in environmental science and environmental justice; the science of reducing police violence; and the role of race in genomic research. Talks will take a variety of forms, from panel discussions to interviews and lectures. Weekly assignments: read a related article and participate in an online discussion.

Same as: AFRICAAM 51A, CEE 151A, COMM 51A, CSRE 51A, HUMBIO 71A

STS 51B. Race in Technology. 1 Unit.

What are the roles of race and racism in science, technology, and medicine? 3-course sequence; each quarter can be taken independently. Winter quarter focuses on technology. How do race and racism affect the design and social impact of technology, broadly defined? Can new or different technology help to reduce racial bias? Invited speakers will address the role of race in such issues as energy infrastructure, nuclear arms control, algorithmic accountability, machine learning, artificial intelligence, and synthetic biology. Talks will take a variety of forms, ranging from panel discussions to interviews and lectures. Weekly assignments: read a related article and participate in an online discussion.

Same as: AFRICAAM 51B, BIOE 91B, CEE 151B, COMM 51B, CSRE 51B, HUMBIO 71B

STS 51C. Race in Medicine. 1 Unit.

What are the roles of race and racism in science, technology, and medicine? 3-course sequence; each quarter can be taken independently. Spring quarter focuses on medicine. How do race and racism affect medical research and medical care? What accounts for health disparities among racial groups? What are the history, ethics, legal, and social issues surrounding racialized medical experiments and treatments? Invited speakers will address these and other issues. Talks will take a variety of forms: conversations, interviews, panels, and others. Weekly assignments: read a related article and participate in an online discussion.

Same as: AFRICAAM 51C, BIOE 91C, CEE 151C, CSRE 51C, HUMBIO 71C