

## SCIENCE, TECHNOLOGY, AND SOCIETY

The Program in Science, Technology, and Society (STS) focuses on the ways in which scientific, technological, and social factors interact to shape modern life. The program brings together humanists, social scientists, engineers, and natural scientists, all committed to transcending the boundaries of their disciplines in a joint search for new insights and new ways of reaching science and engineering students. The goal of the program is to set up a forum to explore the relationship between what scientists and engineers do and the constraints, needs, and responses of society.

Located in a major university where most people study science and engineering, STS is dedicated to understanding the context of science and engineering.

### Undergraduate Study

MIT students are increasingly seeking to understand the social and historical contexts in which they will work and the social consequences of what they will do in their professional careers. STS subjects help them think realistically and creatively about the intellectual, moral, political, and social issues raised by the rapid growth of science and technology in the 20th century and beyond.

STS contributes to undergraduate education at MIT in several ways. It offers general subjects to introduce students to broad social and intellectual perspectives on science and engineering fields. It also offers more specialized subjects in the history of science and technology and in social and cultural studies of science and technology. Within each of these categories, students can choose both introductory and more advanced subjects.

### *STS as a Second Major*

Students who wish to integrate their professional study of engineering or science with a rigorous treatment of its relation to social and historical forces may pursue STS as a second major (<http://catalog.mit.edu/degree-charts/science-technology-society-sts>) in cooperation with the Schools of Engineering and Science. The object of this program is to give those students the full technical and scientific education provided by a science or engineering major, balanced with intensive study of the historical and social contexts of science and technology. Double major applications from students in other Schools (e.g., Architecture and Planning; Management; Humanities, Arts, and Social Sciences) will be considered on a case-by-case basis.

Students in the double major program must complete all the requirements of both majors. The STS requirements include 14 subjects as follows:

- STS.004 Intersections: Science, Technology, and the World
- At least one STS Tier I subject (<http://sts-program.mit.edu/academics/undergraduate/tier-i-subjects>), in addition to STS.004
- At least one STS Tier II subject (<http://sts-program.mit.edu/academics/undergraduate/tier-ii-subjects>)
- Five other STS subjects
- Four subjects related to the historical and social study of science and technology
- STS.THT Undergraduate Thesis Tutorial
- STS.THU Undergraduate Thesis

If a student's other major also requires a thesis, students may coordinate their thesis effort, pending approval of undergraduate officers in both majors. Further details on the requirements of the STS program may be obtained from the STS undergraduate academic officer and the STS academic administrator.

### *Joint Degree Programs*

Students who wish to integrate studies in STS and science or engineering in the context of a single degree should consider this program. It leads to one degree, either a Bachelor of Science in Humanities and Science or a Bachelor of Science in Humanities and Engineering. The STS requirement for either degree is 10 subjects as follows:

- STS.004 Intersections: Science, Technology, and the World
- At least one STS Tier I subject (<http://sts-program.mit.edu/academics/undergraduate/tier-i-subjects>), in addition to STS.004
- At least one STS Tier II subject (<http://sts-program.mit.edu/academics/undergraduate/tier-ii-subjects>)
- Five other STS subjects
- STS.THT Undergraduate Thesis Tutorial
- STS.THU Undergraduate Thesis

Consult the 21E (<http://catalog.mit.edu/degree-charts/humanities-engineering-course-21e>) and 21S (<http://catalog.mit.edu/degree-charts/humanities-science-course-21s>) degree charts for details on the requirements for these joint degrees. Further details may be obtained from the SHASS Dean's Office ([hass-www@mit.edu](mailto:hass-www@mit.edu)), Room 4-240, and the STS academic administrator.

### *Minor in Science, Technology, and Society*

The goal of the minor program is to give students a broad social perspective on the fields of engineering and science: how they have evolved and how they fit into the wider context of society, culture, politics, and values.

The Minor in Science, Technology, and Society consists of six STS subjects, including STS.004, at least one additional subject from the Tier I list, and at least one subject from the Tier II list.

Tier I		
STS.004	Intersections: Science, Technology, and the World <sup>1</sup>	12
<i>Select one of the following:</i>		12
STS.001	Technology in American History	
STS.002	Finance and Society	
STS.003	Ancient Greeks to Modern Geeks: A History of Science	
STS.005[J]	Data and Society	
STS.006[J]	Bioethics	
STS.007	Technology in History	
STS.008	Technology and Experience	
STS.009	Evolution and Society	
STS.011	Engineering Life: Biotechnology and Society	
STS.012	Science in Action: Technologies and Controversies in Everyday Life	
Tier II <sup>2</sup>		
Select one subject from the list of Tier II subjects		9-12
Electives		
Select three additional subjects from among Tiers I and II		27-36
Total Units		60-72

<sup>1</sup> Substitution with a similar subject may be permitted by petition to the STS Undergraduate Officer.

<sup>2</sup> See list of Tier II subjects (<http://sts-program.mit.edu/academics/undergraduate/tier-ii-subjects>).

## Graduate Study

In collaboration, STS, the History Faculty, and the Anthropology Program offer a doctoral program in History, Anthropology, and Science, Technology and Society (HASTS).

The objective of the program is to develop advanced competence in the study of science and technology from a historical and social scientific perspective. Students are expected to develop professional mastery of a field of history or one of the social sciences. They must also master the underlying concepts in science and engineering that relate to their special field of interest.

Graduate students are required to take at least 10 subjects and usually complete them within their first two years. Normally, all students take the following required introductory seminars in their first year:

21A.859[J]	Social Theory and Analysis	12
21H.991	Theories and Methods in the Study of History	12

STS.260 Introduction to Science, Technology, and Society 12

Students are encouraged to take 21A.809 Designing Empirical Research in the Social Sciences or 21A.819[J] Qualitative Research Methods at some point in their program. To fulfill the remaining subject requirement, students choose from among several departmental seminars designed to offer more in-depth study of particular topics. They may also take subjects offered by other MIT departments and through cross-registration with Harvard.

Upon the satisfactory completion of general examinations in the third year, students proceed to the writing of a dissertation proposal and dissertation, usually with the assistance of a multidisciplinary advisory committee.

Students from any academic discipline are invited to apply to the doctoral program.

For additional information about the graduate program, visit the HASTS website (<http://web.mit.edu/hasts>), or contact the STS academic administrator, Room E51-163, 617-253-9759.

## Inquiries

Additional information on the Program in Science, Technology, and Society (<http://sts-program.mit.edu>) may be obtained from the STS academic administrator, Room E51-163, 617-253-9759.

## Faculty and Teaching Staff

Jennifer S. Light, PhD

Bern Dibner Professor of the History of Science and Technology  
Professor of Urban Studies and Planning  
Head, Science, Technology, and Society Program

## Professors

Kate Brown, PhD  
Professor of Science, Technology, and Society

Louis L. Bucciarelli Jr, PhD  
Professor Post-Tenure of Engineering and Technology Studies

Michael M. J. Fischer, PhD  
Andrew W. Mellon Professor in the Humanities  
Professor of Science and Technology Studies  
Professor of Anthropology

Deborah K. Fitzgerald, PhD  
Leverett Howell Cutten '07 and William King Cutten '39 Professor of the History of Technology

David I. Kaiser, PhD  
Germeshausen Professor of the History of Science  
Professor of Physics

Kenneth R. Manning, PhD  
Thomas Meloy Professor of Rhetoric  
Professor of Science, Technology, and Society

David A. Mindell, PhD  
Frances and David Dibner Professor in the History of Engineering and  
Manufacturing  
Professor of Aeronautics and Astronautics  
(On leave, fall)

Merritt Roe Smith, PhD  
Leverett Howell Cutten '07 and William King Cutten '39 Professor of  
the History of Technology  
Professor of History

Sherry R. Turkle, PhD  
Abby Rockefeller Mauzé Professor of the Social Studies of Science  
and Technology

Rosalind H. Williams, PhD  
Bern Dibner Professor Post-Tenure in the History of Science and  
Technology  
Professor Post-Tenure of Science, Technology, and Society

#### **Associate Professors**

William Deringer, PhD  
Associate Professor of Science, Technology, and Society

Clapperton Chakanetsa Mavhunga, PhD  
Associate Professor of Science, Technology, and Society

Eden Medina, PhD  
Associate Professor of Science, Technology, and Society

Robin Scheffler, PhD  
Associate Professor of Science, Technology, and Society

#### **Assistant Professors**

Dwaipayan Banerjee, PhD  
Leo Marx Career Development Professor  
Assistant Professor of Science, Technology, and Society

#### **Adjunct Professors**

John R. Durant, PhD  
Adjunct Professor of Science, Technology, and Society  
(On leave)

#### **Professors Emeriti**

Loren Graham, PhD  
Professor Emeritus of the History of Science

Evelyn Fox Keller, PhD  
Professor Emerita of the History and Philosophy of Science

Kenneth Keniston, PhD  
Andrew S. Mellon Professor Emeritus of Human Development

Leo Marx, PhD  
William R. Kenan Professor Emeritus  
Professor Emeritus of American Cultural History

Theodore A. Postol, PhD  
Professor Emeritus of Science, Technology, and National Security  
Policy

Eugene B. Skolnikoff, PhD  
Professor Emeritus of Political Science  
Professor Emeritus of Science, Technology, and Society

## **Undergraduate Subjects**

### **Tier I Subjects**

#### **STS.001 Technology in American History**

Prereq: None  
Acad Year 2019-2020: Not offered  
Acad Year 2020-2021: U (Spring)  
3-0-9 units. HASS-H

A survey of America's transition from a rural, agrarian, and artisan society to one of the world's leading industrial powers. Treats the emergence of industrial capitalism: the rise of the factory system; new forms of power, transport, and communication; the advent of the large industrial corporation; the social relations of production; and the hallmarks of science-based industry. Views technology as part of the larger culture and reveals innovation as a process consisting of a range of possibilities that are chosen or rejected according to the social criteria of the time.

*M. R. Smith*

#### **STS.002 Finance and Society**

Prereq: None  
Acad Year 2019-2020: Not offered  
Acad Year 2020-2021: U (Fall)  
3-0-9 units. HASS-S; CI-H

Examines finance as a social technology intended to improve economic opportunity by moving capital to where it is most needed. Surveys the history of modern finance, from medieval Italy to the Great Depression, while addressing credit, finance and state (and imperial) power, global financial interconnection, and financial crises. Explores modern finance (since about 1950) from a variety of historical and social-scientific perspectives, covering quant finance, financialization, the crisis of 2007-2008, and finance in the digital age. Enrollment limited.

*W. Deringer*

**STS.003 Ancient Greeks to Modern Geeks: A History of Science**

Prereq: None

Acad Year 2019-2020: U (Spring)

Acad Year 2020-2021: Not offered

3-0-9 units. HASS-H; CI-H

Covers the development of major fields in the physical and life sciences, from 18th-century Europe through 20th-century America. Examines ideas, institutions, and the social settings of the sciences, with emphasis on how cultural contexts influence scientific concepts and practices.

*W. Deringer, D. I. Kaiser***STS.004 Intersections: Science, Technology, and the World**

Prereq: None

U (Fall)

3-0-9 units. HASS-H

Exposes students to multidisciplinary studies in Science, Technology, and Society (STS), using four case studies to illustrate a broad range of approaches to basic principles of STS studies.

Case studies vary from year to year, but always include a current MIT event. Other topics are drawn from legal and political conflicts, and arts and communication media. Includes guest presenters, discussion groups, field activities, visual media, and a practicum style of learning. Enrollment limited.

*D. Fitzgerald***STS.005[J] Data and Society**

Same subject as 11.155[J]

Prereq: None

Acad Year 2019-2020: U (Spring)

Acad Year 2020-2021: Not offered

3-0-9 units. HASS-H

Introduces students to the social, political, and ethical aspects of data science work. Designed to create reflective practitioners who are able to think critically about how collecting, aggregating, and analyzing data are social processes and processes that affect people.

*E. Medina, S. Williams***STS.006[J] Bioethics**

Same subject as 24.06[J]

Prereq: None

Acad Year 2019-2020: U (Fall)

Acad Year 2020-2021: Not offered

3-0-9 units. HASS-H; CI-H

See description under subject 24.06[J].

*A. Chaudhuri, Q. White***STS.007 Technology in History**

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: U (Fall)

3-0-9 units. HASS-H; CI-H

Covers theories of the interactions between historical and technological change; relations between the histories of science and of technology; purported turning points such as the Neolithic, Industrial, and Information Revolutions; case studies from a wide range of times and places; and connections across time and space. Lectures supplemented by student presentations. Frequent writing, rewriting, and small group work. Enrollment limited.

*R. H. Williams***STS.008 Technology and Experience**

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: U (Spring)

3-0-9 units. HASS-S; CI-H

Introduces the "inner history" of technology: how it affects intimate aspects of human experience from sociological, psychological and anthropological perspectives. Topics vary, but may include how the internet transforms our experience of time, space, privacy, and social engagement; how entertainment media affects attention, creativity, aesthetics and emotion; how innovations in wearable and textile technologies reshape notions of history and identity; how pharmaceuticals reshape identity, mood, pain, and pleasure. Includes in-class discussion of readings, short written and multimedia assignments, final project. Enrollment limited.

*Staff***STS.009 Evolution and Society**

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: U (Fall)

3-0-9 units. HASS-H; CI-H

Provides a broad conceptual and historical introduction to scientific theories of evolution and their place in the wider culture. Embraces historical, scientific and anthropological/cultural perspectives grounded in relevant developments in the biological sciences since 1800 that are largely responsible for the development of the modern theory of evolution by natural selection. Students read key texts, analyze key debates (e.g. Darwinian debates in the 19th century, and the creation controversies in the 20th century) and give class presentations.

*J. Durant, R. Scheffler*

**STS.011 Engineering Life: Biotechnology and Society**

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: U (Spring)

3-0-9 units. HASS-H

Provides instruction in the history of humanity's efforts to control and shape life through biotechnology, from agriculture to gene editing. Examines the technologies, individuals and socio-economic systems that are associated with such efforts, as well as the impact that these efforts have on society and science as a whole. Explores these issues with particular attention to the development of the modern biotechnology industry in the Greater Boston area. Includes a field trip.

*R. W. Scheffler***STS.012 Science in Action: Technologies and Controversies in Everyday Life**

Prereq: None

U (Spring)

3-0-9 units. HASS-S

Explores a range of controversies about the role of technology, the nature of scientific research and the place of politics in science: debates about digital piracy and privacy, the role of activism in science, the increasingly unclear boundaries between human and non-human, the role of MRIs as courtroom evidence, the potential influence of gender on scientific research, etc. Provides exposure to science in a dynamic relation with social life and cultural ideas. Materials draw from humanities and social science research, ethnographic fieldwork, films and science podcasts, as well as from experimental multimedia.

*D. Banerjee***Tier II Subjects****STS.021[J] Science Activism: Gender, Race, and Power (New)**

Same subject as WGS.160[J]

Prereq: None

U (Fall)

3-0-9 units. HASS-E

See description under subject WGS.160[J].

*E. Bertschinger***STS.022[J] Gender, Race, and Environmental Justice**

Same subject as 21G.057[J], WGS.275[J]

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: U (Spring)

3-0-9 units. HASS-H

See description under subject 21G.057[J]. Limited to 18.

*B. Stoetzer***STS.023[J] Science, Gender and Social Inequality in the Developing World**

Same subject as WGS.226[J]

Prereq: None

Acad Year 2019-2020: U (Fall)

Acad Year 2020-2021: Not offered

3-0-9 units. HASS-H

See description under subject WGS.226[J].

*A. Sur***STS.025[J] Making the Modern World: The Industrial Revolution in Global Perspective**

Same subject as 21H.285[J]

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: U (Spring)

3-0-9 units. HASS-H

Global survey of the great transformation in history known as the "Industrial Revolution." Topics include origins of mechanized production, the factory system, steam propulsion, electrification, mass communications, mass production and automation. Emphasis on the transfer of technology and its many adaptations around the world. Countries treated include Great Britain, France, Germany, the US, Sweden, Russia, Japan, China, and India. Includes brief reflection papers and a final paper.

*M. R. Smith***STS.026 History of Manufacturing in America**

Subject meets with STS.425

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: U (Spring)

3-0-9 units. HASS-H

Introductory survey of fundamental innovations and transitions in American manufacturing from the colonial period to the mid-twentieth century. Primary emphasis on textiles and metalworking, with particular attention to the role of the machine tool industry in the American manufacturing economy. Students taking graduate version are expected to explore the material in greater depth.

*M. R. Smith*

**STS.027[J] The Civil War and the Emergence of Modern America: 1861-1890**

Same subject as 21H.205[J]  
 Subject meets with STS.427  
 Prereq: Permission of instructor  
 Acad Year 2019-2020: U (Fall)  
 Acad Year 2020-2021: Not offered  
 3-0-9 units. HASS-H

Using the American Civil War as a baseline, considers what it means to become "modern" by exploring the war's material and manpower needs, associated key technologies, and how both influenced the United States' entrance into the age of "Big Business." Readings include material on steam transportation, telegraphic communications, arms production, naval innovation, food processing, medicine, public health, management methods, and the mass production of everything from underwear to uniforms – all essential ingredients of modernity. Students taking graduate version complete additional assignments.

*M. R. Smith*

**STS.028 Seven Wonders of the Engineering World**

Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: U (Spring)  
 3-0-9 units. HASS-H

Uses case studies to take a broad-ranging look at seven major engineering achievements in world history. Examines the nature of engineering as a source of knowledge production/application, how it reflects the cultural settings in which it emerges, and how it changes as it enters different cultural and economic settings. Includes weekly reflection papers. Achievements covered vary from term to term. Limited to 20.

*M. R. Smith*

**STS.030 Forensic History: Problem Solving into the Past (New)**

Prereq: None  
 U (Fall)  
 3-0-9 units. HASS-S

Explores new pathways to use the latest science and technologies to understand the past. Working like detectives, students draw on research methods from such fields as climate science, geology, molecular biology, proteomics, DNA testing, carbon dating and big data analysis to invent their own forensic historical research techniques. They also study new narrative forms to accompany novel research techniques. Instruction and practice in oral and written communication provided. Enrollment limited.

*K. Brown*

**STS.032 Energy, Environment, and Society**

Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: U (Spring)  
 3-0-9 units. HASS-H

Uses a problem-solving, multi-disciplinary, and multicultural approach that takes energy beyond the complex circuits, grids, and kilojoules to the realm of everyday life, with ordinary people as practitioners and producers of energy knowledge, infrastructures, and technologies. The three main objectives are to immerse students in the historical, cultural, multi-cultural, and entrepreneurial aspects of energy across the world to make them better energy engineers; to introduce them to research and analytical methods; and to deploy these methods and their various skills to solve/design a solution, in groups, to a specific energy problem chosen by the students. Each cohort tackles a different energy problem. Provides instruction on how to be active shapers of the world and to bring students' various disciplinary skills and cultural diversity into dialogue as conceptual tools for problem-solving. Enrollment limited.

*C. Mavhunga*

**STS.033[J] People and the Planet: Environmental Histories and Engineering**

Same subject as 11.004[J]  
 Subject meets with 11.204[J], IDS.524[J]  
 Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: U (Spring)  
 3-3-6 units. HASS-E

See description under subject 11.004[J].

*A. Glasmeier, J. Knox-Hayes, A. Slocum, R. Scheffler, J. Trancik*

**STS.034 Science Communication: A Practical Guide**

Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: U (Spring)  
 3-0-9 units. HASS-H; CI-H

Develops students' abilities to communicate science effectively in a variety of real-world contexts. Covers strategies for dealing with complex areas like theoretical physics, genomics and neuroscience, and addresses challenges in communicating about topics such as climate change and evolution. Projects focus on speaking and writing, being an expert witness, preparing briefings for policy-makers, writing blogs, giving live interviews for broadcast, and influencing public dialogue through opinion-editorials. Enrollment limited.

*B. Venkataraman*

**STS.035 Exhibiting Science**

Prereq: One CI-H/CI-HW subject and permission of instructor

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: U (Spring)

2-2-8 units. HASS-A

Project-based seminar covers key topics in museum communication, including science learning in informal settings, the role of artifacts and interactives, and exhibit evaluation. Students work on a term-long project, organized around the design, fabrication, and installation of an original multimedia exhibit about current scientific research at MIT. Culminates with the project's installation in the MIT Museum's Mark Epstein Innovation Gallery. Limited to 20; preference to students who have taken STS.034.

*J. Durant*

**STS.042[J] Einstein, Oppenheimer, Feynman: Physics in the 20th Century**

Same subject as 8.225[J]

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: U (Fall)

3-0-9 units. HASS-H

Explores the changing roles of physics and physicists during the 20th century. Topics range from relativity theory and quantum mechanics to high-energy physics and cosmology. Examines the development of modern physics within shifting institutional, cultural, and political contexts, such as physics in Imperial Britain, Nazi Germany, US efforts during World War II, and physicists' roles during the Cold War. Enrollment limited.

*D. I. Kaiser*

**STS.043 Technology and Self: Science, Technology, and Memoir**

Subject meets with STS.443

Prereq: None

Acad Year 2019-2020: U (Spring)

Acad Year 2020-2021: Not offered

2-0-7 units. HASS-S

Focuses on the memoir as a window onto the relationship of the scientist, engineer, and technologist to his or her work. Studies the subjective side of technology and the social and psychological dimensions of technological change. Students write about specific objects and their role in their lives - memoir fragments. Readings concern child development theory and the role of technology in development. Explores the connection between material culture, identity, cognitive and emotional development. Students taking graduate version complete additional assignments. Limited to 15; no listeners.

*S. Turkle*

**STS.044 Technology and Self: Things and Thinking**

Subject meets with STS.444

Prereq: None

Acad Year 2019-2020: U (Spring)

Acad Year 2020-2021: Not offered

2-0-7 units. HASS-S

Explores emotional and intellectual impact of objects. The growing literature on cognition and "things" cuts across anthropology, history, social theory, literature, sociology, and psychology and is of great relevance to science students. Examines the range of theories, from Mary Douglas in anthropology to D. W. Winnicott in psychoanalytic thinking, that underlies "thing" or "object" analysis. Students taking graduate version complete additional assignments. Limited to 15; no listeners.

*S. Turkle*

**STS.046[J] The Science of Race, Sex, and Gender**

Same subject as 21A.103[J], WGS.225[J]

Prereq: None

U (Spring)

3-0-9 units. HASS-S

See description under subject WGS.225[J].

*A. Sur*

**STS.047 Quantifying People: A History of Social Science**

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: U (Spring)

3-0-9 units. HASS-S

Historical examination of the quest to understand human society scientifically. Focuses on quantification, including its central role in the historical development of social science and its importance in the 21st-century data age. Covers the political arithmetic of the 17th century to the present. Emphasizes intensive reading of primary sources, which represent past attempts to count, calculate, measure, and model many dimensions of human social life (population, wealth, health, happiness, intelligence, crime, deviance, race). Limited to 25.

*W. Deringer*

**STS.048 African Americans in Science, Technology, and Medicine**

Prereq: None  
 U (Spring)  
 3-0-9 units. HASS-H

A survey of the contributions of African Americans to science, technology, and medicine from colonial times to the present. Explores the impact of concepts, trends, and developments in science, technology, and medicine on the lives of African Americans. Examples include the eugenics movement, the Tuskegee Syphilis Experiment, the debate surrounding racial inheritance, and IQ testing.

*K. Manning*

**STS.049 The Long War Against Cancer**

Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: U (Spring)  
 3-0-9 units. HASS-H; CI-H

Examines anticancer efforts as a critical area for the formation of contemporary biomedical explanations for health and disease. Begins with the premise that the most significant implications of these efforts extend far beyond the success or failure of individual cancer therapies. Considers developments in the epidemiology, therapy, and politics of cancer. Uses the history of cancer to connect the history of biology and medicine to larger social and cultural developments, including those in bioethics, race, gender, activism, markets, and governance.

*R. W. Scheffler*

**STS.050 The History of MIT**

Prereq: None  
 Acad Year 2019-2020: U (Spring)  
 Acad Year 2020-2021: Not offered  
 3-0-9 units. HASS-H

Examines the history of MIT, from its founding to the present, through the lens of the history of science and technology. Topics include William Barton Rogers; the modern research university and educational philosophy; campus, intellectual, and organizational development; changing laboratories and practices; MIT's relationship with Boston, the federal government, and industry; and notable activities and achievements of students, alumni, faculty, and staff. Includes guest lecturers, on-campus field trips, and interactive exercises. Enrollment limited.

*D. Douglas*

**STS.052 Living with Risk: Threats, Accidents, and Disasters in a Technological Age**

Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: U (Spring)  
 3-0-9 units. HASS-H

Uses a set of case studies to develop an analytical framework for understanding complex scientific and technical systems and their occasional failures. Addresses topics such as nuclear power and weapons, marine shipping, cybersecurity, and rising sea levels.

*D. Fitzgerald*

**STS.058 Space Exploration and Interplanetary Habitation**

Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: U (Spring)  
 3-0-9 units. HASS-E

Engages with historical, contemporary and emerging practices in sciences, design, architecture, arts, and technology to examine how the study of the histories of colonialism, capitalism, racism, and sexism offers critical means and methods for (re)envisioning outer space exploration, life under extreme conditions, and planetary habitation. Instruction offers tools of analysis issued from Science and Technology Studies (STS) and Feminist Sciences Studies to assess the social, political and anthropological impact of outer space science and technology on Earth-based societies.

*M-P. Boucher*

**STS.060[*J*] The Anthropology of Biology**

Same subject as 21A.303[*J*]  
 Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: U (Fall)  
 3-0-9 units. HASS-S

See description under subject 21A.303[*J*].

*S. Helmreich*

**STS.062[*J*] Drugs, Politics, and Culture**

Same subject as 21A.305[*J*]  
 Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: U (Fall)  
 3-0-9 units. HASS-S

See description under subject 21A.305[*J*]. Limited to 25.

*A. Moran-Thomas*



**STS.064[ ] DV Lab: Documenting Science through Video and New Media**

Same subject as 21A.550[ ]  
 Subject meets with 21A.559  
 Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: U (Spring)  
 3-3-6 units. HASS-A; CI-H

See description under subject 21A.550[ ]. Limited to 12.  
*C. Walley, C. Boebel*

**STS.065[ ] The Anthropology of Sound**

Same subject as 21A.505[ ]  
 Prereq: None  
 Acad Year 2019-2020: U (Spring)  
 Acad Year 2020-2021: Not offered  
 3-0-9 units. HASS-S

See description under subject 21A.505[ ].  
*S. Helmreich*

**STS.071[ ] Cross-Cultural Investigations: Technology and Development**

Same subject as EC.702[ ], 21A.801[ ]  
 Subject meets with EC.792[ ], 21A.839[ ], STS.481[ ]  
 Prereq: None  
 U (Spring)  
 Not offered regularly; consult department  
 3-0-9 units. HASS-S

See description under subject 21A.801[ ].  
*C. Walley*

**STS.074[ ] Art, Craft, Science**

Same subject as 21A.501[ ]  
 Prereq: None  
 Acad Year 2019-2020: U (Spring)  
 Acad Year 2020-2021: Not offered  
 3-0-9 units. HASS-S  
 Credit cannot also be received for 21A.509[ ], STS.474[ ]

See description under subject 21A.501[ ].  
*H. Paxson*

**STS.075[ ] Technology and Culture**

Same subject as 21A.500[ ]  
 Prereq: None  
 U (Fall, Spring)  
 2-0-7 units. HASS-S

See description under subject 21A.500[ ]. Limited to 40.  
*S. Helmreich*

**STS.080[ ] Youth Political Participation**

Same subject as 11.151[ ]  
 Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: U (Spring)  
 3-0-9 units. HASS-H

Surveys youth political participation in the US since the early 1800s. Investigates trends in youth political activism during specific historical periods, as well as what difference youth media production and technology use (e.g., radio, music, automobiles, ready-made clothing) made in determining the course of events. Explores what is truly new about "new media" and reviews lessons from history for present-day activists based on patterns of past failure and success. Some mandatory field trips may occur during class time. Limited to 40.

*J. S. Light*

**STS.081[ ] Innovation Systems for Science, Technology, Energy, Manufacturing, and Health**

Same subject as 17.395[ ]  
 Prereq: None  
 Acad Year 2019-2020: U (Fall)  
 Acad Year 2020-2021: Not offered  
 2-0-7 units. HASS-S

Examines science and technology innovation systems, including case studies on energy, computing, advanced manufacturing, and health sectors. Emphasizes public policy and the federal government's role in that system. Focuses on the US but uses international examples. Reviews foundations of economic growth theory, innovation systems theory, and the basic approaches to science and technology policy. Explores the organization and role of energy and medical science R&D agencies, as well as gaps in those innovation systems. Also addresses the science and technology talent base as a factor in growth, and educational approaches to better support it. Class meets for nine weeks; in the remaining weeks, students work on a final paper due at the end of the term. Limited to 25.

*W. B. Bonvillian*

**STS.082[ ] Science, Technology, and Public Policy**

Same subject as 17.309[ ], IDS.055[ ]  
 Prereq: None  
 U (Spring)  
 4-0-8 units. HASS-S; CI-H  
 Credit cannot also be received for 17.310[ ], IDS.412[ ], STS.482[ ]

See description under subject 17.309[ ].  
*K. Oye, N. Selin*

**STS.o83 Computers and Social Change (New)**

Prereq: None

Acad Year 2019-2020: U (Fall)

Acad Year 2020-2021: Not offered

3-0-9 units. HASS-H

Provides instruction on how people have historically connected computers to ideas on social, economic, and political change and how these ideas have changed over time. Based on a series of case studies from different parts of the world. Explores topics such as how computers have intertwined with ideas on work, freedom, governance, and access to knowledge. Limited to 25.

*E. Medina***STS.o84[[]] Social Problems of Nuclear Energy**

Same subject as 22.04[[]]

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: U (Spring)

3-0-9 units. HASS-S

See description under subject 22.04[[]]. Limited to 18.

*R. S. Kemp***STS.o85[[]] Foundations of Information Policy**

Same subject as 6.805[[]]

Subject meets with STS.487

Prereq: Permission of instructor

U (Fall)

3-0-9 units. HASS-S

See description under subject 6.805[[]]. Enrollment limited.

*H. Abelson, M. Fischer, D. Weitzner***STS.o86[[]] Cultures of Computing**

Same subject as 21A.504[[]], WGS.276[[]]

Prereq: None

U (Fall)

3-0-9 units. HASS-S

See description under subject 21A.504[[]].

*Staff***STS.o87 Biography in Science**

Prereq: None

Acad Year 2019-2020: U (Fall)

Acad Year 2020-2021: Not offered

3-0-9 units. HASS-H

An examination of biography as a literary genre to be employed in the history of science. The use of biography in different historical periods to illuminate aspects of the development of science. A critical analysis of autobiography, archival sources, and the oral tradition as materials in the construction of biographies of scientists. Published biographies of scientists constitute the major reading, but attention is given to unpublished biographical sources as well. Comparison is drawn between biography as a literary form in the history of science and in other disciplines.

*K. Manning***STS.o88 Africa for Engineers**

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: U (Spring)

3-0-9 units. HASS-H

Covers historical, cultural, and ethical dimensions of engineering in Africa. Focuses on construction of big projects like cities, hydroelectricity dams, roads, railway lines, ports and harbors, transport and communication, mines, industrial processing plant, and plantations. Explores the contributions of big capital, engineers, politicians, and ordinary people. Emphasizes how local culture, politics, labor, and knowledge affect engineering. Also focuses on environmental and cultural impact assessment. Prepares students who wish to work or study in Africa and the Global South. Enrollment limited.

*C. Mavhunga***STS.o95, STS.o96 Independent Study in Science, Technology, and Society**

Prereq: None

U (Fall, IAP, Spring)

Units arranged [P/D/F]

Can be repeated for credit.

For students who wish to pursue special studies or projects with a member of the Program in Science, Technology, and Society. STS.o95 is letter-graded; STS.o96 is P/D/F.

*Staff*

**Special Subjects****STS.S20, STS.S21 Special Subject: Science, Technology and Society**

Prereq: None

U (Fall, IAP, Spring)

Not offered regularly; consult department

Units arranged

Can be repeated for credit.

Addresses subject matter in Science, Technology and Society that is not offered in the regular curriculum.

*Staff***Research****STS.095, STS.096 Independent Study in Science, Technology, and Society**

Prereq: None

U (Fall, IAP, Spring)

Units arranged [P/D/F]

Can be repeated for credit.

For students who wish to pursue special studies or projects with a member of the Program in Science, Technology, and Society. STS.095 is letter-graded; STS.096 is P/D/F.

*Staff***STS.UR Undergraduate Research**

Prereq: None

U (Fall, IAP, Spring, Summer)

Units arranged [P/D/F]

Can be repeated for credit.

Undergraduate research opportunities in the STS Program.

*Staff***STS.URG Undergraduate Research**

Prereq: None

U (Fall, IAP, Spring, Summer)

Units arranged

Can be repeated for credit.

Undergraduate research opportunities in the STS Program.

*Staff***STS.THT Undergraduate Thesis Tutorial**

Prereq: None

U (Fall, Spring)

Units arranged

Can be repeated for credit.

Definition and early-stage work on thesis project leading to STS.THU. Taken during first term of student's two-term commitment to thesis project. Student works closely with STS faculty tutor. Required of all candidates for an STS degree.

*Staff***STS.THU Undergraduate Thesis**

Prereq: STS.THT

U (Fall, IAP, Spring, Summer)

Units arranged

Can be repeated for credit.

Completion of work of the senior major thesis under the supervision of a faculty tutor. Includes gathering materials, preparing draft chapters, giving an oral presentation of thesis progress to faculty evaluators early in the term, and writing and revising the final text. Students meet at the end of the term with faculty evaluators to discuss the successes and limitations of the project. Required of all candidates for an STS degree.

*Staff***Graduate Subjects****Required Introductory Subjects****STS.250[*J*] Social Theory and Analysis**Same subject as 21A.859[*J*]

Prereq: None

G (Fall)

3-0-9 units

See description under subject 21A.859[*J*].

*M. Fischer***STS.260 Introduction to Science, Technology, and Society**

Prereq: None

G (Spring)

3-0-9 units

Intensive reading and analysis of major works in historical and social studies of science and technology. Introduction to current methodological approaches, centered around two primary questions: how have science and technology evolved as human activities, and what roles do they play in society? Preparation for graduate work in the field of science and technology studies and introduction to research resources and professional standards.

*D. I. Kaiser*

**Advanced Seminars****STS.310 History of Science**

Prereq: Permission of instructor  
 Acad Year 2019-2020: G (Fall)  
 Acad Year 2020-2021: Not offered  
 3-0-9 units

Intensive reading and analysis of key works in the history and historiography of science. Introduces students to basic interpretive issues, bibliographic sources, and professional standards. Topics change from year to year.

*R. W. Scheffler*

**STS.320[J] Environmental Conflict**

Same subject as 21A.429[J]  
 Prereq: Permission of instructor  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: G (Spring)  
 3-0-9 units

Explores the complex interrelationships among humans and natural environments, focusing on non-western parts of the world in addition to Europe and the United States. Use of environmental conflict to draw attention to competing understandings and uses of "nature" as well as the local, national and transnational power relationships in which environmental interactions are embedded. In addition to utilizing a range of theoretical perspectives, subject draws upon a series of ethnographic case studies of environmental conflicts in various parts of the world.

*C. Walley*

**STS.330[J] History and Anthropology of Medicine and Biology**

Same subject as 21A.319[J]  
 Prereq: Permission of instructor  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: G (Spring)  
 3-0-9 units

See description under subject 21A.319[J].

*S. Helmreich*

**STS.340 Introduction to the History of Technology**

Prereq: Permission of instructor  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: G (Spring)  
 3-0-9 units

Introduction to the consideration of technology as the outcome of particular technical, historical, cultural, and political efforts, especially in the United States during the 19th and 20th centuries. Topics include industrialization of production and consumption, development of engineering professions, the emergence of management and its role in shaping technological forms, the technological construction of gender roles, and the relationship between humans and machines.

*M. R. Smith, D. Mindell*

**STS.360[J] Ethnography**

Same subject as 21A.829[J]  
 Prereq: None. *Coreq: 21A.859[J]*; permission of instructor  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: G (Fall)  
 3-0-9 units

Practicum-style course in anthropological methods of ethnographic fieldwork and writing. Depending on student experience in ethnographic reading and practice, subject combines reading ethnographies in anthropological and science studies with formulating and pursuing ethnographic work in local labs, companies, or other sites. Preference to HASTS, CMS, HTC and Sloan graduate students.

*M. Fischer*

**STS.412 Quantification**

Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: G (Spring)  
 3-0-9 units

Surveys research on quantification, the practice of using numerical data and calculation to analyze, order, and control. Begins by examining historical accounts of the rise of quantitative methods and values since c. 1600. Goes on to explore the dynamics and consequences of quantification across a range of modern domains, including science, politics, governance, health, education, crime, law, economic development, finance, and environmental regulation. Readings drawn from STS, history, anthropology, sociology, and philosophy.

*W. Deringer*

**STS.414[J] Risk, Fortune, and Futurity**

Same subject as 21H.984[J]

Prereq: None

G (Spring)

Not offered regularly; consult department

3-0-9 units

See description under subject 21H.984[J]. Open to undergraduates with permission of instructor; consult department for details.

*W. Deringer, C. Horan*

**STS.417 STS Seminar on the Global South**

Prereq: None

Acad Year 2019-2020: G (Spring)

Acad Year 2020-2021: Not offered

3-0-9 units

Covers Africa and its diaspora, Latin America and the Caribbean, the Middle East, Southeast Asia and Asia, and Oceania. Seeks to explore meanings of science and technology from traditions, experiences, and literatures of these regions; to understand encounters and outcomes of endogenous and inbound ideas, artifacts, and practice; and to engage European and North American science, technology, and society (STS) in dialogue with these literatures. Provides a global view of STS in an increasingly interconnected world. Focuses on peoples of the Global South as innovative intellectual agents, not just victims of technology or its appropriators.

*D. Banerjee*

**STS.418 Science and Technology in South Asia: Perspectives from History and Anthropology**

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: G (Fall)

3-0-9 units

Surveys transformations of science and technology in colonial and postcolonial South Asia, 19th-21st centuries. Explores colonial science paradigms, the colony as an experimental space, the scientifically planned postcolonial state, alternative science movements, genetic experimentations for food sovereignty, and most recently, the region's role as a node in a global regimes of biotech and IT. Discussions address the scholarly and practical constructions of western, global, non-western and indigenous science, and the analytic limits and salience of such categories. Readings include works in history, anthropology and literature.

*D. Banerjee*

**STS.419 Global Science: Ethnography, Literature, and Film**

Prereq: Permission of instructor

Acad Year 2019-2020: G (Fall)

Acad Year 2020-2021: Not offered

3-0-9 units

Going beyond issues of brain drain and brain circulation, explores how contemporary science and technology innovations look from, and are being created in, parts of the world other than the US and Europe. Uses films, novels, and artworks to think across disciplinary boundaries and the impact of science and technology on social worlds (as well as the social worlds of scientists and engineers). Open to upperclassmen with permission of instructor.

*M. Fischer*

**STS.425 History of Manufacturing in America**

Subject meets with STS.026

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: G (Spring)

3-0-9 units

Introductory survey of fundamental innovations and transitions in American manufacturing from the colonial period to the mid-twentieth century. Primary emphasis on textiles and metalworking, with particular attention to the role of the machine tool industry in the American manufacturing economy. Students taking graduate version are expected to explore the material in greater depth.

*M. R. Smith*

**STS.427 The Civil War and the Emergence of Modern America: 1861-1890**

Subject meets with 21H.205[J], STS.027[J]

Prereq: None

Acad Year 2019-2020: G (Fall)

Acad Year 2020-2021: Not offered

3-0-9 units

Using the American Civil War as a baseline, considers what it means to become "modern" by exploring the war's material and manpower needs, associated key technologies, and how both influenced the United States' entrance into the age of "Big Business." Readings include material on steam transportation, telegraphic communications, arms production, naval innovation, food processing, medicine, public health, management methods, and the mass production of everything from underwear to uniforms – all essential ingredients of modernity. Students taking graduate version complete additional assignments.

*M. R. Smith*

**STS.429 Food and Power**

Prereq: Permission of instructor  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: G (Spring)  
 3-0-9 units

Anthropological and historical analysis of food production, processing, and consumption in the US and globally. Emphasizes the social and technical practices of raising crops and livestock; efforts to preserve as well as create new foods; the industrialization and de-industrialization of food; the relation between food supply and safety and the state; the role of ethnicity and gender in consumption patterns; and the historical and cultural act of eating. STS.250[J] recommended.

*D. Fitzgerald*

**STS.436 Cold War Science**

Prereq: None  
 Acad Year 2019-2020: G (Fall)  
 Acad Year 2020-2021: Not offered  
 3-0-9 units

Examines the history and legacy of the Cold War on science and the environment in the US and the world. Explores scientists' new political roles after World War II, ranging from elite policy makers in the nuclear age to victims of domestic anti-Communism. Also examines the changing institutions in which various scientific fields were conducted during the postwar decades, investigating possible epistemic effects on forms of knowledge. Subject closes by considering the places of science in the US during the post-Cold War era.

*K. Brown, D. I. Kaiser*

**STS.441 Technology and Self: Technology and Conversation**

Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: G (Fall)  
 2-0-10 units

Explores the relationship between technology and conversation, with an emphasis on conversation in our digital age when so many say they would rather text than talk. Topics center on the psychology of online life, such as the way in which we both share and withhold information about the self. Discussion about the ways new kinds of online conversation are playing out in education, the workplace, and in families and what the changes in conversation mean for collaboration, innovation, and leadership. Readings include works in history, literature, anthropology, psychology, and linguistics. Open to undergraduates by permission of instructor. Limited to 15; no listeners.

*S. Turkle*

**STS.443 Technology and Self: Science, Technology, and Memoir**

Subject meets with STS.043  
 Prereq: Permission of instructor  
 Acad Year 2019-2020: G (Spring)  
 Acad Year 2020-2021: Not offered  
 2-0-7 units

Focuses on the memoir as a window onto the relationship of the scientist, engineer, and technologist to his or her work. Studies the subjective side of technology and the social and psychological dimensions of technological change. Students write about specific objects and their role in their lives - memoir fragments. Readings concern child development theory and the role of technology in development. Explores the connection between material culture, identity, cognitive and emotional development. Students taking graduate version complete additional assignments. Limited to 15; no listeners.

*S. Turkle*

**STS.444 Technology and Self: Things and Thinking**

Subject meets with STS.044  
 Prereq: Permission of instructor  
 Acad Year 2019-2020: G (Spring)  
 Acad Year 2020-2021: Not offered  
 2-0-7 units

Explores emotional and intellectual impact of objects. The growing literature on cognition and “things” cuts across anthropology, history, social theory, literature, sociology, and psychology and is of great relevance to science students. Examines the range of theories, from Mary Douglas in anthropology to D.W. Winnicott in psychoanalytic thinking, that underlies “thing” or “object” analysis. Students taking graduate version complete additional assignments. Limited to 15; no listeners.

*S. Turkle*

**STS.450 The Global History of Medicine and Public Health**

Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: G (Spring)  
 3-0-9 units

Surveys recent and canonical scholarship on the history of medicine and public health as a global set of events starting in the 15th century. Examines themes including race, gender, class, imperialism, warfare, religion, governance, indigenous knowledge, disciplinarily, the body, and citizenship. Emphasizes the development of methods and historiographic approaches for studying these themes.

*R. W. Scheffler*

**STS.454 Museums, Science and Technology**

Prereq: Permission of instructor  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: G (Spring)  
 3-0-9 units

Examines science, technology and museums. Includes regular readings and discussions about the evolution of museums of science and technology from (roughly) 1800 to the present. Students undertake special projects linked to the MIT Museum's re-location to a new building under construction in Kendall Square. Students act as informal consultants to the MIT Museum, offering proposals for innovative elements that will be seriously considered for inclusion in the new Museum.

*J. Durant*

**STS.460 Histories of Information, Communication, and Computing Technologies**

Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: G (Spring)  
 3-0-9 units

Introduction to the historical study of information, communication, and computing technologies with a focus on the United States. Pairs analysis of a multidisciplinary reading list with in-depth discussions of research methods and writing for academic publications. Later weeks of the course adapt to student interests and are determined by students in consultation with the instructor. Limited to 15.

*J. S. Light*

**STS.461 History and Social Study of Computing (New)**

Prereq: None  
 Acad Year 2019-2020: G (Spring)  
 Acad Year 2020-2021: Not offered  
 3-0-9 units

Examines the history and social study of computers. Introduces students to the core and canonical literature in this area while also providing the opportunity to read and discuss more recent works from multiple disciplines.

*E. Medina*

**STS.462 Social and Political Implications of Technology**

Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: G (Fall)  
 3-0-9 units

Historical and contemporary studies are used to explore the interaction of technology with social and political values. Emphasis on how technological devices, structures, and systems influence the organization of society and the behavior of its members. Examples drawn from the technologies of war, transportation, communication, production, and reproduction.

*M. R. Smith*

**STS.463[ ] Technocracy**

Same subject as 11.461[ ]  
 Prereq: None  
 Acad Year 2019-2020: Not offered  
 Acad Year 2020-2021: G (Fall)  
 3-0-9 units

Survey of the history of efforts to apply scientific methods and technological tools to solve social and political problems, with a focus on the United States since 1850. Topics include: city planning, natural resource management, public education, economic development, quantification and modeling in the social and policy sciences, technology transfer, and political economies of expertise.

*J. S. Light*

**STS.465[ ] Research Seminar on Technology and the Work of the Future (New)**

Same subject as 11.652[ ]  
 Prereq: None  
 Acad Year 2019-2020: G (Spring)  
 Acad Year 2020-2021: Not offered  
 3-0-9 units

Examines the past, present and future of work from an interdisciplinary perspective, drawing from the humanities, social sciences, and cognitive science and engineering. Integrates perspectives from history, philosophy, sociology, economics, management, political science, brain and cognitive science and other relevant literatures, creating a solid foundation from which to interpret current public discourse on the subject. Discussion focuses primarily on the US; comparative perspectives from other countries incorporated into discussions and analysis. Limited to 15.

*D. Mindell, E. B. Reynolds*

**STS.467[J] The History of Aviation**

Same subject as 16.707[J]

Prereq: Permission of instructor

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: G (Spring)

3-0-9 units

Reading course in the history of aviation, focusing on science and technology and cultural and political context. Themes include: the science of aeronautics, pilots and piloting, control systems and electronics, engineering epistemology, infrastructure, industry, government and politics, evolution of aeronautics research, culture and experience, automation and autonomy, role of MIT, literature and film. Case studies of specific systems and engineering projects. Emphasis is on book-length texts, close reading, historical methods of analyzing technological change. Study of social and political dimensions of engineering projects, examination of aviation institutions. Students prepare weekly response papers to readings, make extended presentations to class twice per semester, and submit a final research paper.

*D. Mindell*

**STS.470[J] Research Seminar: Human, Remote and Autonomous Systems in Air, Sea, and Space**

Same subject as 16.440[J]

Prereq: 16.400, 16.453[J], or permission of instructor

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: G (Fall)

3-0-9 units

See description under subject 16.440[J].

*D. A. Mindell*

**STS.471[J] Engineering Apollo: The Moon Project as a Complex System**

Same subject as 16.895[J]

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: G (Spring)

4-0-8 units

Detailed technical and historical exploration of the Apollo project to fly humans to the moon and return them safely to Earth as an example of a complex engineering system. Emphasizes how the systems worked, the technical and social processes that produced them, mission operations, and historical significance. Guest lectures by MIT-affiliated engineers who contributed to and participated in the Apollo missions. Students work in teams on a final project analyzing an aspect of the historical project to articulate and synthesize ideas in engineering systems.

*D. Mindell*

**STS.474[J] Art, Craft, Science**

Same subject as 21A.509[J]

Prereq: None

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: G (Fall)

3-0-9 units

Credit cannot also be received for 21A.501[J], STS.074[J]

See description under subject 21A.509[J].

*H. Paxson*

**STS.477[J] Writing: Science, Technology, and Society**

Same subject as 21W.820[J]

Prereq: 21H.991

Acad Year 2019-2020: Not offered

Acad Year 2020-2021: G (Fall)

3-0-9 units

Examination of different "voices" used to consider issues of scientific, technological, and social concern. Students write frequently and choose among a variety of non-fiction forms: historical writing, social analysis, political criticism, and policy reports. Instruction in expressing ideas clearly and in organizing a thesis-length work. Reading and writing on three case studies drawn from the history of science; the cultural study of technology and science; and policy issues.

*K. Manning*

**STS.481[J] Cross-Cultural Investigations: Technology and Development**

Same subject as EC.792[J], 21A.839[J]

Subject meets with EC.702[J], 21A.801[J], STS.071[J]

Prereq: None

G (Spring)

Not offered regularly; consult department

3-0-9 units

See description under subject 21A.839[J].

*C. Walley*

**STS.482[J] Science, Technology, and Public Policy**

Same subject as 17.310[J], IDS.412[J]

Prereq: Permission of instructor

G (Spring)

4-0-8 units

Credit cannot also be received for 17.309[J], IDS.055[J], STS.082[J]

See description under subject 17.310[J].

*K. Oye, N. Selin*



**STS.487 Foundations of Information Policy**

Subject meets with 6.805[], STS.o85[]

Prereq: Permission of instructor

G (Fall)

3-0-9 units

Studies the growth of computer and communications technology and the new legal and ethical challenges that reflect tensions between individual rights and societal needs. Topics include computer crime; intellectual property restrictions on software; encryption, privacy, and national security; academic freedom and free speech. Students meet and question technologists, activists, law enforcement agents, journalists, and legal experts. Instruction and practice in oral and written communication provided. Students taking graduate version complete additional assignments. Enrollment limited.

*H. Abelson, M. Fischer, D. Weitzner*

**Special Subjects****STS.S91 Special Subject: Science, Technology and Society**

Prereq: None

Acad Year 2019-2020: G (Fall)

Acad Year 2020-2021: Not offered

Units arranged

Can be repeated for credit.

Addresses a special topic in Science, Technology and Society which is not offered in the regular curriculum.

*Staff*

**STS.S92 Special Subject: Science, Technology and Society**

Prereq: None

Acad Year 2019-2020: G (Fall)

Acad Year 2020-2021: Not offered

Units arranged

Can be repeated for credit.

Addresses subject matter in Science, Technology and Society that is not offered in the regular curriculum.

*Staff*

**Research and Teaching****STS.800 Teaching Science, Technology and Society**

Prereq: None

G (Fall, Spring)

Units arranged [P/D/F]

Can be repeated for credit.

For qualified graduate students serving as either a teaching assistant or instructor for subjects in Science, Technology and Society (STS). Enrollment limited by availability of suitable teaching assignments.

*Staff*

**STS.850 Practical Experience in HASTS Fields (New)**

Prereq: None

G (Fall, IAP, Spring, Summer)

Units arranged [P/D/F]

Can be repeated for credit.

For HASTS students participating in curriculum-related off-campus professional internship experiences. Before registering for this subject, students must have an offer letter from a company or organization and must receive written prior approval from their advisor. Upon completion of the experience, students must submit a substantive final report, approved by their advisor. Subject to departmental approval. Consult departmental graduate office. Permission of advisor.

*Staff*

**STS.901-STS.904 Independent Study in Science, Technology, and Society**

Prereq: Permission of instructor

G (Fall, Spring)

Units arranged

Can be repeated for credit.

For students who wish to pursue special studies or projects at an advanced level with a faculty member of the Program in Science, Technology, and Society.

*Staff*

**STS.THG Graduate Thesis**

Prereq: Permission of instructor

G (Fall, IAP, Spring, Summer)

Units arranged

Can be repeated for credit.

Program of graduate research leading to the writing of a PhD thesis, to be arranged by the student with an appropriate MIT faculty member, who is the thesis supervisor.

*Staff*