

Program in Science, Technology, and Society

The [Program in Science, Technology, and Society](#) (STS) helps MIT offer an education that teaches scientists and engineers to engage the social and cultural dimensions of their work at the highest levels. This education sets MIT apart from the numerous engineering schools worldwide that turn out technical specialists. The STS program continues to distinguish itself as the leading department, and graduate program, of its kind in the US.

Educational Activities

Undergraduate

In AY2012, 108 students from 17 majors chose STS as their concentration, up more than one-third from the previous year. The largest student representation came from Courses 2, 6, and 7. Nine undergraduate students worked on minors in STS, two of whom graduated in AY2012. STS had two undergraduate majors through the joint bachelor of science degree in Humanities and Science (Course 21S) program, and professor Hanna Rose Shell served as these students' primary advisor in her role as STS undergraduate officer. One STS major, Sheila Xu '14, will spend summer 2012 in Los Angeles working on her project *An Interpretivistic Approach to the Deaf Economy*, for which she received a Peter J. Eloranta Summer Undergraduate Research Fellowship.

Four students worked on Undergraduate Research Opportunity Program (UROP) projects. Professor John Durant supervised three of those projects: *Eye Robot Enhancements*, *Browser-controlled Remote Hologram Camera*, and *Rivers of Ice Kiosk* (a yearlong project). Professor Evelyn Fox Keller supervised a UROP volunteer project titled *Gender and Science in Europe*.

Subjects and Enrollment

STS offered 25 undergraduate subjects and 17 graduate subjects in AY2012, including five undergraduate humanities, arts, and social sciences distribution (HASS-D)/communication intensive-HASS (CI-H) subjects and three CI-H subjects. STS continues to emphasize collaboration with other areas of MIT and offered 14 subjects jointly with the following academic units: Anthropology, Electrical Engineering and Computer Science, Harvard-MIT Division of Health Sciences and Technology, History, Media Arts and Sciences, Political Science, and Women's and Gender Studies.

Undergraduate enrollment totaled 389, which included majors from 19 MIT departments as well as Harvard University and Wellesley College students. The two majors with the largest representation were Course 6 and Course 2. Sixty-seven freshmen were enrolled in STS classes. Graduate enrollment totaled 183 students from 19 programs, including Health Sciences and Technology, Media Arts and Sciences, and Architecture.

Overall undergraduate enrollment has been growing steadily in recent years—up 20% between AY2007 and AY2011. However, these enrollments fell sharply during AY2012, due to the fact that three of the largest HASS-D classes were not offered this year because of faculty leaves and departures. Another of STS's largest subjects, STS.005

Disease and Society in America, also a HASS-D subject, was offered by a part-time lecturer to fill in for professor David Jones, who left MIT for Harvard University in July 2011. In addition to rebuilding staple subjects after Professor Jones's departure, STS continues to adjust (as do most departments throughout the School of Humanities, Arts, and Social Sciences [SHASS]) to the removal of the HASS-D requirement. STS is developing new undergraduate subjects, some aimed at the new HASS Exploratory (HEX) designation, and it is anticipated that enrollments will once again begin to rise.

Doctoral Program

The doctoral program in History, Anthropology, and Science, Technology, and Society (HASTS) is run by STS in collaboration with the History faculty and the Anthropology program. The program is administered by STS, which awards the degree. Professor Harriet Ritvo served her first year as HASTS director of graduate studies in AY2012. Professor Ritvo conducted the admissions process, chaired the HASTS steering committee, served as academic advisor to the first-year cohort, and worked closely with students to encourage them to meet deadlines in a timely manner.

This was the inaugural year of the HASTS Program Seminar, which received rave reviews. The seminar, which meets weekly throughout the academic year, is intended to fill a number of pedagogical and community-building gaps in the HASTS program. It offers graduate students and postdoctoral associates a forum for honing a range of professionally useful skills. Most meetings are devoted to the discussion of precirculated papers, but some meetings address such practical issues as the construction of curriculum vitae, preparation for the job market, and application for grants and fellowships.

The HASTS program received 142 applications for admission by the January 1, 2012, deadline, and looks forward to enrolling five new students, including two international students, from this pool in fall 2012. The incoming group holds degrees in anthropology, brain and cognitive science, chemistry, history and science, and sociology, and four of the group have completed master's degrees.

In AY2012, there were 32 students in the HASTS program. Four students completed their doctoral degrees during this period and are now working at Johns Hopkins School of Medicine, University of Pennsylvania Integrated Studies Program, Ecole normale supérieure de Cachan, and Rhode Island School of Design.

Projects, Grants, and Initiatives

David Kaiser, David Jones, and Vincent Lépinay's two-year research grant from the National Science Foundation (NSF) for their project Predictive Modeling of the Emergence and Development of Scientific Fields has been extended until June 30, 2013. During the previous year, members of this group published five peer-reviewed articles and one book chapter based on research performed as part of this project.

The postdoctoral fellowship grant under the direction of Professor Kaiser received additional funding. The fellowship is designed to foster research in the history of modern physical sciences by a recent PhD graduate. The physical sciences encompass disciplines that include physics, astronomy, chemistry, mathematics, and earth sciences, as well as border fields between these disciplines. The selected fellow, Dr. Roberto Lalli, completed the first year and will continue his second year in AY2013.

Ongoing Program Activities

Ongoing STS activities bring a wide variety of distinguished scholars to the MIT campus on a regular basis. The longest running of these activities is the STS Colloquia series, whose format was revamped during AY2012. Each event now focuses on a substantial, precirculated paper and features both the paper's author and a separate commentator. In AY2012, STS held five colloquia, bringing 10 distinguished speakers to campus. Speakers hailed from Princeton University, Harvard University, the University of Chicago, the University of Geneva, Virginia Polytechnic Institute and State University, the University of Wisconsin–Madison, Mount Holyoke College, and Loyola University.

In addition to our colloquia, STS hosted several special events, including the Arthur Miller Lecture on Science and Ethics, which is promoted to the larger MIT and Boston-area communities. In fall 2011, Marc Rotenberg, executive director of the Electronic Privacy Information Center, delivered the 2011 Miller Lecture, titled "Civil Liberties and Technology: Safeguarding Freedom in the Information Age." STS also sponsored the Morison Prize Lecture, which recognizes the accomplishments of an individual who has made major contributions connecting science and technology with matters of societal concern. In spring 2012, the Morison Prize Lecture was given by Gregory Clancey, from the Department of History at the National University of Singapore, and was titled "Telling Stories about Technology in the Asian Century." STS also hosted a memorial workshop in April 2012 in honor of professor emeritus Charles Weiner that featured 13 speakers, including several alumni of the HASTS program.

STS co-sponsored several major events during AY2012, including a daylong symposium titled *Climate Change 2011: When Policymakers Fail*, which featured (among others) Ralph Cicerone, president of the US National Academy of Sciences (co-sponsored with the Knight Science Journalism Fellows Program). STS also cosponsored a workshop in honor of the 25th anniversary of the original publication of *Anthropology as Cultural Critique*, co-written by STS faculty member Michael Fischer and his colleague George Marcus (University of California, Irvine). The event featured eight speakers, including several recent HASTS alumni. Lastly, STS cosponsored an event titled "Adapting Journalism to the Web: Experiments and Ordeals on the News Frontier" with MIT's Center for Civic Media, the MIT Communications Forum, the Comparative Media Studies (CMS) program, and the Program in Writing and Humanistic Studies.

The History faculty and STS continue to cosponsor the MIT Seminar on Environmental and Agricultural History (formerly the Modern Times/Rural Places Seminar), which brings speakers to campus to give talks on environmental and agricultural history.

The Benjamin Siegel Prize of \$2,500 is awarded annually to the MIT student submitting the best written work on issues in science, technology, and society. The prize is open to undergraduate and graduate students from any school or department of the Institute. This year's committee awarded the 2011–2012 prize to HASTS graduate student Thomas Schilling for his paper "British Columbia Mapped: Geology, Indigeneity, and Land in the Age of Digital Cartography."

Knight Science Journalism Fellowship Program

2011–2012 was the 29th year of the Knight Science Journalism Fellowship Program at MIT and the fourth year under the directorship of Philip Hilts. The program continues to attract science journalists from around the world seeking to learn more about the science and technology subjects they cover. The 29th class of Fellows included Alister Doyle, Dan Falk, Pawel Gorecki, Jia Hepeng, Eli Kintisch, Bill Lattanzi, Vincent Liota, Joyce Murdoch, Helen Shariatmadari, Maria Stenzel, Evelyn Tagbo, and Roeun Van.

Fellows spent most of their time attending classes at MIT and Harvard University, but also attended more than 40 seminars with faculty that were specially organized for them, as well as other seminars and workshops devoted to science and technology and their wider impacts. Topics included "How the Hippies Saved Physics," "How Brains Understand Minds," "Human Wars with Microbes," "Ancient Shipwrecks in the Mediterranean," "Reporting about the Net in the Past and in the Future," and "Linguistics and Politics."

The Knight Science Journalism Program's digital media training continues to expand. Fellows attended workshops on video production and editing, radio reporting, data journalism and visualization, and online multimedia under the instruction of experts from both academia and top news organizations. The 2011–2012 fellowship year also saw the addition of new or expanded sessions in photojournalism, website building and management, and social media in the newsroom. The program is committed to providing vital skills training to fellowship appointees, educating them on the techniques and technologies crucial to success in the rapidly changing landscape of digital newsgathering.

Director Hilts organized three weeklong intensive seminars, referred to as boot camps, for current Knight Fellows and other science journalists. In December 2011, the Medical Evidence Boot Camp (now in its tenth year) brought together medical researchers to evaluate scientific and medical evidence. Group members explored how new drugs are tested and how the Food and Drug Administration, the National Institutes of Health, and other agencies evaluate treatments, old and new. They looked at the rise of "evidence-based medicine" and why expensive care may not always be good care. In March 2012, the Food Boot Camp was offered for the fourth time. Foodborne disease, obesity and malnutrition, and toxic imports were among the topics covered by researchers and leaders from universities, government, and industry. The Knight Program sponsored the sixth Kavli Science Journalism Workshop, held on June 4–6, 2012. The focus of this annual gathering rotates among the subjects of the universe,

neuroscience, and nanotechnology, and at this year's three-day intensive workshop, top scientists from MIT and Harvard University explained the fundamentals of nanotechnology.

The Knight Fellowships are supported by an endowment from the John S. and James L. Knight Foundation, by MIT, and by alumni and foundation gifts.

Faculty Activities

Michael Fischer spent three months doing fieldwork in Singapore; drafted or revised three articles; published three papers; taught four subjects; served on one completed dissertation committee, two completed General Exam committees, and serves as chair of two ongoing dissertation committees; and hosted one postdoctoral associate. He presented papers and/or served as workshop commentator at seven national or international meetings (American Anthropological Association [AAA]; the Society for Social Studies of Science; the University of Chicago; the National University of Singapore; the University of California, Irvine; Harvard University; and MIT), as well as attended genomics and life sciences meetings in Singapore and Sydney. He gave talks at Harvard University and Cornell University, and helped organize workshops at Harvard University and MIT, and participated in the workshop for professor James Howe's retirement. He continues to serve on the board of governors of the University of California Humanities Research Institute, on the editorial boards of *Cultural Politics* and of *East Asian Science Technology and Society*, and has joined the advisory editorial board of the new Japan-based ejournal *Nature/Culture*. He continues to coedit the Duke University Press book series *Experimental Futures: Technological Lives, Scientific Arts, Anthropological Voices*, in which five former STS people have books forthcoming. He serves on promotion committees in the Foreign Languages and Literature section and in STS, and participated in admissions for STS. He continues to be an active participant in three academic networks that hold workshops or conferences: the STS Southeast and East Asian Network, based at the National University of Singapore; the Values/Knowledge Network, based at the University of Chicago; and the Oral History of Science and Ethnography of Iran Network, based at the University of California, Irvine.

David Kaiser completed his first year as STS department head. He published two peer-reviewed articles, three invited book chapters, and invited essays in *Nature*, *Scientific American*, *London Review of Books*, *The Guardian*, *The Philadelphia Inquirer*, and *The Huffington Post*. His anthology, coedited with Sally Gregory Kohlstedt (University of Minnesota), is in production: *Science and the American Century: Perspectives on Science, Technology, and Medicine* (University of Chicago Press). He began writing a textbook, with Physics colleague Alan Guth, on gravitation and cosmology, aimed at advanced undergraduates in physics. The project grows out of his advising activities in the physics department, including his co-advising one Physics PhD student, one Physics senior thesis, and 14 Physics undergraduate UROP students. He has continued serving as advisor for seven doctoral students in the HASTS program (principal advisor for four), as well as five History of Science doctoral students at Harvard University and the

University of Toronto, and two postdoctoral fellows in STS. He contributed interviews about physics and the history of science for eight public radio stations throughout the US, Canada, and the UK, as well as continued to advise on multiple projects for the public television series *NOVA*. Kaiser continues serving as a coeditor of *Historical Studies in the Natural Sciences*, and on the MIT Press editorial board. He recently joined the alumni advisory board for the Department of Physics and Astronomy at Dartmouth College. He served as program co-chair for the 2012 annual meeting of the History of Science Society, and as local organizer for its 2013 annual meeting (to be held in Boston). Recent honors include the Frank E. Perkins Award for Excellence in Graduate Advising and a MacVicar Faculty Fellowship.

Vincent-Antonin Lépinay worked on his second manuscript, “How to be a Bad Trader: Lessons from Economics and Law,” in discussion with Princeton University Press for publication in 2013.

Clapperton Chakanetsa Mavhunga completed his manuscript “The Mobile Workshop: Tsetse Mobilities, African Technologies, and ‘Colonial’ Science in Zimbabwe” and submitted it to MIT Press in June 2012. Most of the writing and editing were done while in residency at the Rachel Carson Center, Ludwig Maximilian University, Munich, where Mavhunga he is now an alumni fellow. With Gijs Mom (Eindhoven University of Technology), he completed editing the first draft of *Inside Mobility* (MIT Press), a volume dedicated to rethinking mobility on a global scale; the second round of editing and responses to reviewer comments is now underway. He published three book chapters: “Which Mobility for (Which) Africa? Beyond Banal Mobilities,” *T2M Yearbook* (Alphil); “Mobility and the Making of Animal Meaning: The Kinetics of ‘Vermin’ and ‘Wildlife’ in Southern Africa,” in Georgina Montgomery and Linda Kalof (eds.), *Making Animal Meaning* (Michigan State University Press); and “Mugabe, Robert,” in Henry Louis Gates and Emmanuel Akyeampong (eds.), *Dictionary of African Biography* (Oxford University Press). He continued research on his co-innovations project in Makuleke, with funding from the MIT Science and Technology Initiatives, and started his second book project, *The Black Bvekenyas*. As a Poiesis Fellow, he is working with other fellows on a project titled The Rural and Urban in Unlikely Places, with a special focus on the Amilcar Cabral informal (slum) settlement in Maputo, Mozambique. He traveled to Mozambique in October to conduct fieldwork, and will be contributing an article, a manifesto, and a picture essay on future cities to a special issue of *Public Culture*, featuring the Poiesis Fellows and their mentors. He continues editing a documentary series on the indigenous technologies of Makuleke, featuring fire-making, livestock-keeping, agriculture, firewood and forests, commerce, mining and metallurgy, and architecture.

David Mindell was on parental leave in fall 2011 and on sabbatical leave in spring 2012. During his sabbatical, he was a visiting scholar at Aurora Flight Sciences Engineering Research Center, in Cambridge, where he collaborated on proposal writing and conducted research on human, remote, and autonomous vehicles. This project examines a host of issues that arise with automated and robotic systems, with a comparative perspective across several domains, including human spaceflight, commercial aviation,

general aviation, air force unmanned vehicles, undersea exploration, and surgery. Research continued apace in collaboration with Lufthansa, FedEx, the US Air Force, the Veterans Affairs hospital in Roxbury, and the Woods Hole Oceanographic Institution, and is being extended to other institutions. He gave a plenary talk at a National Aeronautics and Space Administration symposium titled Exploration Telerobotics, on applying the insight and experience of deep-ocean robotics to space exploration. He is beginning a project on the history of analog-to-digital converters, and is completing a paper on the pre-computer use of media technologies in education. He lectured at the US Air Force Academy, the Kalmar Nyckell Foundation, the US Air Force Research Laboratory, the USS *Monitor* Center/Mariners' Museum, and other venues. His book *Iron Coffin: War Technology and Experience Aboard the USS Monitor* was published as an updated edition of a book from 2000, and his book *Digital Apollo: Human and Machine in Spaceflight* appeared in paperback. He and his spouse, Pamela Mindell, continue as housemasters at Edgerton House.

Ted Postol continues his work on policy issues connected with missile defense systems in collaboration with the Stanford University Policy Group (headed by Bill Perry), the Princeton University Project on International Security (headed by Frank von Hippel), and the Science, Technology, and Global Security Working Group.

Natasha Schüll was on maternity leave for summer and fall 2011. In July, she gave a keynote presentation at the National Council on Problem Gambling annual meeting, and in November she was a panelist for an executive session titled Collaborative Ethnography at AAA meetings in Canada. She wrote the article "The Touch-point Collective: Crowd Contouring on the Casino Floor," published in the journal *limn* in April 2012. During the spring, she developed her next book project on the phenomenon of self-tracking in the digital world and drafted an NSF grant proposal on the topic. In the process, she conceived and designed a related graduate seminar called Self as Data, to be taught in fall 2012, which will serve as the basis for a future HEX undergraduate course on the same topic and for which Schüll submitted a course development application to the SHASS Teaching and Learning funds committee. In March, she was an invited speaker at Hampshire College's Neuroscience and Society Lecture Series, and was the keynote speaker at the Ohio Department of Alcohol and Drug Addiction Services spring conference. In the spring, she served on a job search committee for the CMS program, and peer-reviewed several articles for academic journals.

Hanna Rose Shell taught four courses; participated in STS, HASTS, CMS, SHASS, and Institute-related service; published a book; and lectured extensively in the US and Europe. She taught two undergraduate and two graduate classes: STS.008 Technology and Experience; STS.056 Science and the Cinema; STS.260 Introduction to Science, Technology, and Society; and STS.390 Research Seminar in Science, Technology, and Society. She served as STS undergraduate officer, and as a member of the SHASS Education Advisory Committee. Other service within the Institute includes judging the Knight Science Journalism Fellowship, giving the keynote address at the HASTS graduate student conference, and judging the CMS Media Spectacle. Her book *Hide and Seek:*

Camouflage, Photography, and the Media of Reconnaissance was published and released in April 2012—public readings have included presentations at Cabinet (New York City) and the Brookline Booksmith, and both MIT News and the *Paris Review* have written about it. Preproduction is complete on her new film, *Shoddy*, to coincide with her book manuscript in progress, whose working title is Textile Skin. Invited academic lectures include the digital humanities laboratory HUMlab at Umea University, in Sweden; the University of California, San Diego; the University of California, Davis; and Stanford University. She received a promotion to associate professor without tenure, effective July 1, 2012.

Merritt Roe Smith continued his appointments as distinguished lecturer for the Organization of American Historians and honorary guest professor at the Kanazawa Institute of Technology. In addition to chairing the Review Committee on Orientation and serving on the Committee on Academic Performance, the Student Support Services Faculty Advisory Committee, the Department of Undergraduate Education Faculty Advisory Committee, and as Convener of the Housemaster's Council, he served as housemaster of the Burton Conner residence hall, through June 30. He continues to edit the Johns Hopkins Studies in the History of Technology series at the Johns Hopkins University Press, as well as serve on the national advisory committees of the American Precision Museum, the Thomas A. Edison Papers project at Rutgers University, WGBH's *American Experience* television series, the American Textile History Museum, and the Lincoln Prize at Gettysburg College. In addition to delivering keynote lectures at two National Endowment for the Humanities Landmarks of American History Teacher Workshops at the Tsongas Industrial History Center/University of Massachusetts Lowell, he also lectured on "The Civil War as a Technological Event" at Miami University, Ohio; delivered a paper on "The Military Origins of Mass Production" at Yale University; chaired a session on "Race and Industrialization in Antebellum America" at the annual meeting of the Organization of American Historians; and served on the Visiting Scholars Selection Committee at the American Academy of Arts and Sciences. He continues to work on his book about technology during the American Civil War.

Sherry Turkle wrote and spoke broadly in academic and broader cultural venues on the social and psychological impact of our digital culture. She was a keynote speaker at the Aspen Ideas Festival and at the Most Powerful Women Summit, at Hampshire College, where *Alone Together: Why We Expect More from Technology and Less from Each Other* was given to members of the freshman class for orientation weekend. She lectured at the University of Arizona; the University of California, Berkeley and Irvine; the Austen Riggs Center; *The Economist* Conference; the Boston Book Festival; the Chicago Humanities Festival; Sarah Lawrence College; the Harvard Conference on Learning and the Brain; Holy Cross College; Harvard Medical School; and the Boston Athenaeum. In April 2012, the Museum of Fine Arts, Boston, held a daylong conference centered on her work, and she was a Computer and Information Science and Engineering distinguished lecturer at NSF. She made appearances on national media, including the radio programs *Radiolab*, *The Diane Rehm Show*, and *The Takeaway*, and the television programs *CBS Morning News*, *Rock Center with Brian Williams*, and CNN nightly news. She delivered a Technology, Entertainment, and Design Talk that received over 800,000 hits, "Connected,

Yet Alone,” and wrote an article for the *Boston Globe Magazine* titled “How 9/11 Changed How We Used Technology,” to mark the anniversary of the 9/11 attacks, and a front page Opinion piece for the *New York Times*, titled “The Flight from Conversation,” which was the most emailed story in the paper for the week it appeared. The writing she found most meaningful was the eulogy she composed as keynote speaker at the Media Lab’s celebration of the life of professor William Mitchell, in October 2011.

Rosalind Williams completed two projects of different tones. The first, an essay on human and technological time, appeared in *Technology and Culture*, in July 2011, and recounts a journey she made with her brother to the Bernese Alps the previous summer, 51 years after they had made the same journey with their parents—the project allowed her to supplement the print publication with online publication of photographs from both journeys. The second project was her paper titled “The Rolling Apocalypse of Contemporary History,” prepared for the Aftermath Project, organized by Manuel Castells and sponsored by the Gulbenkian Foundation. It was presented at the third and final gathering of the Lisbon Aftermath Network, in July, which concluded that what began as an economic crisis was rapidly morphing into a crisis of democracy—a conclusion that has since been strongly confirmed, especially in the European Union. The paper will appear in a volume titled *Aftermath: The Cultures of the Economic Crisis*, published by Oxford University Press. The final Aftermath Network meeting was covered by a Dutch public television crew, resulting in a program broadcast in fall 2011 and an interactive website, both of which have received considerable attention, especially in Europe. In the fall, she continued her involvements in European universities by participating in a review committee for the Open University of Catalonia (an on-line venture) and for the Centre for the History of Science, Technology, and Medicine, at Imperial College (London). In the spring, she spent a week as distinguished visiting professor at the Technical University of Eindhoven (The Netherlands), which is radically and rapidly revamping its undergraduate engineering program, using MIT’s program as an explicit model. She gave invited keynote lectures at American University, and the Harvard Graduate School of Design, as well as a lecture at the National Air and Space Museum (Smithsonian Institution). She continues to serve on the editorial board of *Engineering Studies* and on the advisory board and collections committee of the MIT Museum, as well as chair its nominations committee. She arranged and hosted a visit to MIT for animator/filmmaker Gui Marcondes, resulting in his successful application to return to MIT this coming year under the Visiting Artists Program. Her main project throughout the year was revising her book manuscript (now titled *Human Empire*) for the University of Chicago Press; it has received final approval for publication, expected in early 2013.

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