Guide to the Focus in Technology, Information and Society

For History and Science Concentrators

Science and Society Track

Honors Eligible

2017-2018

This focus requires 12 courses for non-honors (5 science, 5 history of science, and two units of tutorial), 13 courses for the non-thesis honors option (involving an additional graduate-level course normally taken in the senior year), and 14 courses for the thesis honors option (involving an additional two semesters of HS 99ab).

Every concentrator choosing this focus will take History of Science 100 (Knowing the World: An Introduction to the History of Science*)*, normally in the fall semester of the sophomore year. In addition, every concentrator will take one semester of sophomore tutorial (in the spring) and one semester of junior tutorial (fall), taught by faculty members and teaching fellows from the Department of the History of Science. Students wishing to write a senior thesis will take HS 99ab in their senior year.

A. Science Component (5 courses)

All students who choose this focus will take five courses in computer science or an area of engineering taught in the College (bioengineering, electrical engineering, mechanical engineering, environmental science and engineering). Normally, students will begin with a foundational course recommended by the relevant science department and then take a minimum of four additional courses. Note that Math 1a and Math 1b would NOT normally count for concentration credit, even if these courses are prerequisites for some of the courses students might wish to take.

By way of example, a student might take a sequence of science courses that are all taught in the Computer Science Department, such as the following:

CS 50: Foundation course
CS 121: Introduction to the Theory of Computation
CS 127: Introduction to Cryptography
CS 148: Design of VLSI Circuits and Systems
CS 146: Computer Architecture

An alternative path for a student interested in (say) the intersection of computer science and artificial intelligence might, in contrast, draw on a mix of science courses from several relevant departments:

CS 50: Foundation course
Eng-Sci 159: Introduction to Robotics
CS 181: Machine Learning
CS 182: Intelligent Machines: Reasoning, Action
Neurobio 130: NeuroVisual Recognition: Computational and Biophysical Perspective

A student interested in combining coursework in (say) electrical engineering courses with history of science and technology courses might take a mix of science courses like these:

Eng-Sci 50: Intro to Electrical Engineering
Eng-Sci 52: The Joy of Electronics
AP 50b: Electromagnetism
Eng-Sci 156: Signals & Systems
CS 141: Computing Hardware

We will work closely with each individual student to develop a robust and sensible cluster of science courses that suits individual interests.

B. History of Science and Technology Component (5 half courses)

In addition to HS 100: Knowing the World, students will take a minimum of four courses designed to allow them to study the larger historical, ethical, and social implications of technology, engineering and information in the modern world. Two of these may be Gen Ed or foundational (e.g., a freshman seminar), but at least two should normally be at least 100-level courses or equivalent. One of the courses may in an area falling within the history of science or medicine that is outside the primary focus.

By way of example, a student might take a sequence of courses that are all taught in the Department of the History of Science, such as the following:
HS 100: Knowing the World
HS 188: Open Minds, Wired Worlds: Computers and Cyberculture
HS 185: Communicating Science: From Print Culture to Cybersocieties
HS 136: History of Biotechnology
HS 272: Big Data: Past, Present, Future

An alternative path for a student interested (say) in the intersection of history of biotechnology and ethics might, in contrast, draw on a mix of courses from several relevant departments:
HS 100: Knowing the World
HS 136: History of Biotechnology
SCRB 60: Ethics, Biotechnology, and the Future of Human Nature
CS 108: Intelligent Systems: Design and Ethical Challenges
HS 253: Bioethics, Law, and the Life Sciences

A student with interests in intersections between engineering and the environment might take a mix of classes like the following:
HS 100: Knowing the World
ESPP 77: Technology, Environment and Society
ESPP 90a: Energy, Technology and the Environment
ESPP 90p: Biotechnology, Sustainability and Public Policy
HS 231: Transforming Technologies: Science, Technology, and Social Change

Students may also receive concentration credit for certain of the courses being offered in the new Harvard Summer Program in Freiburg, Germany, especially the newly- developed course: ENVR S-114 Study Abroad in Freiburg, Germany: Sustainability, taught by Professor Sheila Jasanoff

Required Original Research

In addition to this coursework, all students will take two tutorials (HS 97 and HS 98). Honors students will take an additional year-long tutorial in their senior year (HS 99ab).

HS 98, the junior tutorial, is an intensive research tutorial required of all concentrators, and all students pursuing the TIS focus will be expected to produce an original 25 page research paper that investigates some area to do with modern computer science, technology, or engineering.

Honors candidates will be additionally expected to produce a senior thesis that undertakes more sustained research in one of these areas.

Other Examples of Curricular Offerings Appropriate for this Focus

The focus in Technology, Information and Society is supported by a depth of curricular offerings in both the Department of the History of Science and beyond. Courses that students might choose to take to fulfill the social science requirements of this focus include (but are not limited to):

Freshman Seminar 22r: Introduction to Technology and Society
HS 136: History of Biotechnology
HS 139: The Postgenomic Moment
HS 144: Medical Technologies in Historical Perspective
HS 180: Science, Technology and Society in Modern East Asia
HS 181: Humans in Space: Past, Present, Future
HS 185: Communicating Science: From Print Culture to Cybersocieties
HS 188: Open Minds, Wired Worlds: Computers and Cyberculture
HS 192: The Empire Strikes Back: Science Fiction, Religion, and Society
HS 198: Controversy: Explorations at the Intersection of Science, Policy, and Politics

HS 231: Transforming Technologies: Science, Technology, and Social Change (with permission of the instructor)
HS 261: Ethnography of Science and Technology (with permission)
HS 271: Self as Data (with permission of the instructor)
HS 272: Big Data: Past, Present, Future (with permission of the instructor)
CB 30: A History of Photography
CS 108: Intelligent Systems: Design and Ethical Challenges
HIST 1993: Introduction to Digital History
ESPP 77: Technology, Environment and Society
ESPP 90A: Energy, Technology and the Environment
ESPP 90p: Biotechnology, Sustainability and Public Policy
ENVR S-114 Study Abroad in Freiburg, Germany: Sustainability (if admitted to the program)
SCRB 60: Ethics, Biotechnology, and the Future of Human Nature
Sociology 120: Law, Science, and Society in America
HDS 3256: The Shock of the New

Cross Registration at MIT

Some students may also wish to cross-register for relevant courses (normally, no more than two for concentration credit) offered in our sister program at MIT; for example, the following courses could be among those they might consider taking:

STS.007: Technology in History STS.008: Technology and Experience
STS.043: Technology and Self: Science, Technology, and Memoir
STS.044: Technology and Self: Things and Thinking
STS.086: Cultures of Computing

Advising Resources

Professor Matthew Hersch, a professor in the History of Science Department who specializes in the history of technology, is available for general advising on this focus, and may also be available for advising on research projects and other special opportunities.

Director of Undergraduate Studies, Anne Harrington, and Manager of Student Programs, Allie Belser, are both available for general assistance in navigating through the program.