HISTORY OF SCIENCE
(Div II and III, see course descriptions)
Chair: Professor Jason Storm

A major in the History of Science is not offered, but the occasional Contract Major or a related interdisciplinary field is possible. Courses in the History of Science are designed primarily to complement and strengthen work in other major fields. Although any of the courses may be taken separately, studying related courses in other departments will enhance their value, because by nature, History of Science is interdisciplinary.

The following will serve as examples: HSCI 101 is an introduction to science and technology studies, and concentrates on key aspects of contemporary science and technology relevant to many issues of living in a technological society. HSCI 224 Scientific Revolutions deals with the emergence of modern science in the 1600s and 1700s, and with subsequent revolutions in scientific thought; as such it complements courses related to modern European history. HSCI 240 traces the influential role of science and invention in the shaping of American culture, and complements offerings in American Studies and American History. HSCI 320, an historical overview of the ideas, practice, and organization of medicine, provides context for related coursework in History, Philosophy, and the Premed Program.

Courses of Related Interest

PHIL 209 Philosophy of Science
SOC 368 Technology and Modern Society

HSCI 99 (W) Indep Study: History of Science
Open to upperclass students. Students interested in doing an independent project (99) during Winter Study must make prior arrangements with a faculty sponsor. The student and professor then complete the independent study proposal form available online. The deadline is typically in late September. Proposals are reviewed by the pertinent department and the Winter Study Committee. Students will be notified if their proposal is approved prior to the Winter Study registration period.

Class Format: independent study
Distributions: (D2)

Winter 2019
IND Section: 01

HSCI 101 (S) Science, Technology, and Human Values
Crosslistings: HSCI101 / SOC201 / SCST101

Secondary Crosslisting
This course offers an introduction to science and technology studies, or STS. A radically interdisciplinary field of inquiry, the roots of STS stretch through the philosophy, history, and sociology/anthropology of science and technology. Students will become acquainted with major STS schools, methodological strategies and research trajectories through intensive reading and analysis of classical and contemporary works in the field.
Considerable attention will be devoted to exploring the nature of science and technology, their relationships to and interactions with one another, society and the natural world, and the influences these interactions exert in shaping what humans value. A fundamental goal of the course is to cultivate awareness and understanding of the social organization of technology and scientific knowledge production, and the technoscientific structuring of modern social life broadly. The course as such is aimed at attracting from all divisions those students who are intellectually adventurous and inclined to think critically about the place and prominence of science and technology in the modern world.

Class Format: seminar
Requirements/Evaluation: two or three short exercises, two papers (3-5 pages and 5-7 pages), and two hour exams
Prerequisites: none
Enrollment Limit: 25
Enrollment Preferences: first-years and sophomores
Expected Class Size: 20
Distributions: (D2)

Spring 2019
SEM Section: 01    MWF 8:30 am - 9:45 am     Grant Shoffstall

HSCI 236 (F) Automatic Culture: From the Mechanical Turk to A.I.
Crosslistings: HSCI236 / SCST236

Secondary Crosslisting
Using literary writing and visual representation as our primary points of entry, we will study the history of automation, exploring its effects as idea and as material implementation upon public and private spheres, craftsmen and courts, wage-laborers, artists, and inventors. Readings from such authors as E.T.A. Hoffman, Kurt Vonnegut, Roald Dahl, and Sydney Padua will be supplemented with studies in the history and historiography of technology. The objects we examine will be as different from one another as the dulcimer-playing android presented as a gift to Marie Antoinette, IBM's Deep Blue, and contemporary devices like Amazon's Echo.

Class Format: seminar
Requirements/Evaluation: students will be evaluated based on mid-term and final essays, discussion participation, and brief in-class writing exercises.
Prerequisites: none
Enrollment Limit: 25
Enrollment Preferences: SCST concentrators
Expected Class Size: none
Distributions: (D2)

Fall 2018
SEM Section: 01    TR 8:30 am - 9:45 am     Ezra D. Feldman

HSCI 240 (F) Great Astronomers and Their Original Publications  (WI)
Crosslistings: ASTR240 / LEAD240 / SCST240 / HSCI240

Secondary Crosslisting
We study many of the greatest names in the history of astronomy, consider their biographies, assess their leadership roles in advancing science, and examine and handle the first editions of their books and other publications. Our study includes, in addition to a Shakespeare First Folio (with its astronomical mentions) and a page from the Gutenberg Bible, original books such as: 16th-century, Nicolaus Copernicus (heliocentric universe); Tycho Brahe (best pre-telescopic observations); 17th-century, Galileo (discoveries with his first astronomical telescope, 1610; sunspots, 1613; Dialogo, 1632); Johannes Kepler (laws of planetary motion, 1609, 1619); Johannes Hevelius and Elisabeth Hevelius (atlases of the Moon and of stars, 1647, and 1687); Isaac Newton (laws of universal gravitation and of motion, 1687); 18th-century, Edmond Halley (Miscellanea curiosa, eclipse maps, 1715, 1724); John Flamsteed and Margaret Flamsteed (Atlas Coelestis, 1729); William Herschel and Caroline Herschel (1781, 1798). In more recent centuries, the original works are articles: 20th--century: Albert Einstein (special relativity, 1905; general relativity, 1916); Marie Curie (radioactivity); Cecilia Payne-Gaposchkin (hydrogen dominating stars, 1929), Edwin Hubble (Hubble's law, 1929); Vera Rubin (dark matter, 1970s); Jocelyn Bell Burnell (pulsar discovery, 1968); 21st-century: Wendy Freedman (Universe's expansion rate, 2000s). We will also read biographies and recent novels dealing with some of the above astronomers. With the collaboration of the Chapin Librarian, we will meet regularly in the Chapin Library of Rare Books and also have a session at the library of the Clark Art Institute to see its rare books of astronomical interest. The course is a repeat of the successful course first given during the 2014-15 academic year's Year of the Book, honoring the new Sawyer Library and the expansion of the Chapin Library of Rare Books.

Class Format: seminar
Requirements/Evaluation: class participation, two 5-page intermediate papers, and a final 15-page paper
Enrollment Limit: 12
**Enrollment Preferences:** if overenrolled, preference by written paragraph of explanation of why student wants to take the course

**Distributions:** (D2) (WI)

**Distribution Notes:** meets Division 3 requirement if registration is under ASTR; meets Division 2 requirement if registration is under HSCI, LEAD or SCST

**Attributes:** LEAD Facets or Domains of Leadership; SCST Related Courses;

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Fall 2018

SEM Section: 01  W 1:10 pm - 3:50 pm  Jay M. Pasachoff

**HSCI 336 (S) Science, Pseudoscience, and the Two Cultures (WI)**

Crosslistings: LEAD336 / ASTR336 / HSCI336

**Secondary Crosslisting**

A famous dichotomy between the sciences and the humanities, and public understanding of them, was laid down by C. P. Snow and has been widely discussed, with ignorance of the second law of thermodynamics compared with ignorance of Shakespeare. In this seminar, we will consider several aspects of science and scientific culture, including how scientific thinking challenges the claims of pseudoscience. We will consider C. P. Snow and his critics as well as the ideas about the Copernican Revolution and other paradigms invented by Thomas Kuhn. We will discuss the recent "Science Wars" over the validity of scientific ideas. We will consider the fundamental originators of modern science, including Tycho, Kepler, Galileo, and Newton, viewing their original works in the Chapin Library of rare books and comparing their interests in science with what we now call pseudoscience, like alchemy. We will review the history and psychology of astrology and other pseudosciences. Building on the work of Martin Gardner in *Fads and Fallacies in the Name of Science*, and using such recent journals as *The Skeptical Inquirer* and *The Scientific Review of Alternative Medicine*, we consider from a scientific point of view what is now called complementary or alternative medicine, including both older versions such as chiropractic and newer nonscientific practices. We will discuss the current global-climate-change deniers and their effects on policy. We discuss vaccination policy. We consider such topics as GM (genetically modified) foods, the safety and regulation of dietary supplements, and the validity of government and other recommendations relevant to the roles of dietary salt, sugar, and fat in health. We consider the search for extraterrestrial intelligence (SETI) and reports of UFO's and aliens. We consider the possible effects that superstitious beliefs have on the general public's cooperation in vaccination programs and other consequences of superstition. We will discuss conspiracy theories such as those about the Kennedy assassination, in view of the 2017 release of many documents from the time and the recent book by Alexandra Zapruder, the granddaughter of the person whose on-the-spot movie documented the fatal shot. We also consider a range of dramas that are based on scientific themes, such as Tom Stoppard's *Arcadia* and Michael Frayn's *Copenhagen*.

**Class Format:** seminar

**Requirements/Evaluation:** evaluation will be based on biweekly 5-page papers, participation in discussions, and a 15-page final paper

**Prerequisites:** none

**Enrollment Limit:** 12

**Enrollment Preferences:** juniors and seniors and to those with backgrounds in science, history of science, or philosophy.

**Expected Class Size:** 12

**Department Notes:** non-major course; does not count toward ASPH, ASTR or PHYS major

**Distributions:** (D3) (WI)

**Distribution Notes:** meets Division 3 requirement if registration is under ASTR; meets Division 2 requirement if registration is under HSCI or LEAD

**Attributes:** SCST Elective Courses;

Not offered current academic year

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**HSCI 338 (F) Transhumanism: Religion, Technoscience, Obsolescence**

Crosslistings: SOC338 / REL338 / HSCI338 / SCST338

**Secondary Crosslisting**

This interdisciplinary seminar invites students to pursue sociohistorical analysis and sustained critical discussion of the so-called "transhumanist movement" and its overriding aim: the transformation and eventual transcendence of human biological constitution; the realization, through highly speculative technoscientific means, of an enhanced or even "postbiological" existence, the so-called "posthuman condition," "Humanity 2.0." Through
close readings of historical documents, transhumanist texts, scholarship on transhumanism, and relevant works of science-fiction film and literature, we will position the movement as an empirical conduit through which to explore the sociohistorical conditions under which transhumanist ideas have emerged, circulated, and taken up residence. To this end, we will consider transhumanism's ties to some of the most objectionable aspects of modern technology and late capitalism; eugenics, the commodification of health, and massive investments pharmaceuticals, anti-aging medicine, and so-called "GNR" technologies (i.e. genetics, nanotechnology, and artificial intelligence and robotics); the movement's affinities with neoliberalism and Euro-American (cyber) libertarian politics; and what some have pointed to as transhumanism's racialized subtext of whiteness. We will furthermore devote considerable attention to the technological singularity, artificial intelligence, the figure of the cyborg, mind-uploading, space colonization, and cryonic suspension, all of which, like transhumanism broadly, suggest that science and technology have in some sense come to operate as powerful channeling agents for the very sorts of magical beliefs, practices, and forms of expectation and association that theorists of secularization expected modernity to displace. Lastly, throughout the course of the seminar we will take transhumanism as a provocation to think broadly and seriously about embodiment, culture, and ways of being human.

Class Format: seminar
Requirements/Evaluation: attendance and participation, informal weekly writing, 15- to 20-page seminar paper
Extra Info: not available for the fifth course option
Prerequisites: none
Enrollment Limit: 20
Enrollment Preferences: Anthropology and Sociology majors and Science and Technology Studies concentrators
Expected Class Size: 20
Distributions: (D2)
Not offered current academic year

HSCI 371 (S) Medicine, Technology, and Modern Power
Crosslistings: SOC371 / HSCI371 / SCST371
Secondary Crosslisting
Medicalization: those processes by which previously non-medical problems, once defined as ethical-religious, legal or social (e.g. drug and alcohol addition, shyness, obesity), are brought within the purview of medical science and redefined as medical problems, usually in terms of "illness" or "disorder." Part I: The history of the medicalization thesis; medicalization as a technical process; modern medicine as a form of social control; critiques of the medicalization thesis. Part II: From medicalization to biomedicalization; from the management of human life to the transformation of "life itself" by way of post-World War II technoscientific interventions aimed at "optimizing" human vitality. Empirical cases for consideration will be drawn from those technoscientific developments having made possible the work of optimization that defines biomedicalization: molecular biology, pharmacogenomics, biotechnologies, imaging techniques, robotics, and transplant medicine, among others. Finally, a consideration of how processes of biomedical optimization have produced new ways of seeing, knowing, and imagining human bodies, such that biology is increasingly less representative of "destiny" than it is of possibility. The course will to this end conclude with a survey of emerging issues in speculative technoscience and the ethics and politics of human enhancement.

Class Format: lecture
Requirements/Evaluation: weekly discussion précis, science-fiction book review essay, class presentations, and a take-home midterm
Extra Info: may not be taken on a pass/fail basis
Prerequisites: none
Enrollment Limit: 25
Enrollment Preferences: preference will be given to Anthropology and Sociology students
Expected Class Size: 20-25
Distributions: (D2)
Attributes: PHLH Bioethics + Interpretations of Health
Not offered current academic year

HSCI 497 (F) Independent Study: History of Science
History of Science independent study.
HSCI 498 (S) Independent Study: History of Science

History of Science independent study.

Class Format: independent study

Distributions: (D2)

Spring 2019
IND Section: 01  TBA  Jason Josephson Storm