

**HISTORY OF SCIENCE**  
**(Div II and III, see course descriptions)**  
**Chair: Professor Jason Josephson 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 / STS 209\(S\)Philosophy of Science](#)

Taught by: [Bojana Mladenovic](#)  
[Catalog details](#)

[SOC 368 / ENVI 368Technology and Modern Society](#)

Taught by: [James Nolan](#)  
[Catalog details](#)

**HSCI 240 (F) Great Astronomers and Their Original Publications (WS)**

**Cross-listings:** ASTR 240 STS 240 HSCI 240 LEAD 240

**Secondary Cross-listing**

In this course we will study some of the greatest figures in astronomy and consider their leadership in advancing progress in the field. We will consider their lives and works, especially as represented by original copies of their books and other publications. These great astronomers include: 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); and William Herschel and Caroline Herschel (1781, 1798). Also, from more recent times in which original works are often articles rather than books: 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); and 21st century: Wendy Freedman (Universe's expansion rate, 2000s). First editions will be available in Williams's Chapin Library of rare books, and facsimiles or digital copies will be provided for remote learning. We will also consider how such original materials are collected and preserved, and look at examples from the wider world of rarities, such as a leaf from the *Gutenberg Bible* (c. 1450) and a Shakespeare *First Folio* (1623, with a discussion of astronomical references in Shakespeare's plays). We evaluate a trove of books and papers about historic transits of Venus. We discuss matters of fraud and authenticity, especially the case of a purported *Sidereus Nuncius*, shown to be a modern construction. The course will be taught in collaboration between an astronomer and a rare books librarian, with remote lectures by experts from around the world.

**Class Format:** Meeting on campus in the Chapin Library classroom (Sawyer 452) or remotely; students who are not on campus can visit the original books at a later time/year.

**Requirements/Evaluation:** class participation, two 5-page intermediate papers, and a final 15-page paper; student choice of additional readings from a provided reading list

**Prerequisites:** none

**Enrollment Limit:** 12

**Enrollment Preferences:** if overenrolled, preference by written paragraph of explanation of why student wants to take the course

**Expected Class Size:** 12

**Grading:** yes pass/fail option, yes fifth course option

**Distributions:** (D3) (WS)

**This course is cross-listed and the prefixes carry the following divisional credit:**

ASTR 240 (D3) STS 240 (D2) HSCI 240 (D3) LEAD 240 (D3)

**Writing Skills Notes:** Comments on submitted papers will aid in writing skills

**Attributes:** LEAD Facets or Domains of Leadership

Not offered current academic year

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

**Cross-listings:** LEAD 336 ASTR 336 HSCI 336

Secondary Cross-listing

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*.

**Requirements/Evaluation:** 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

**Grading:** yes pass/fail option, yes fifth course option

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

**Distributions:** (D3)

**This course is cross-listed and the prefixes carry the following divisional credit:**

LEAD 336 (D3) ASTR 336 (D3) HSCI 336 (D2)

Not offered current academic year

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

**Cross-listings:** HSCI 338 SOC 338 STS 338 REL 338

Secondary Cross-listing

This interdisciplinary seminar invites students to pursue sociohistorical analysis and sustained critical discussion of the transhumanist movement and its overriding aims: the augmentation, transformation, and eventual transcendence of human biological constitution; the realization, through speculative technoscientific means, of an enhanced or even "postbiological existence"--a "posthuman condition," "Humanity 2.0." Through close

readings of primary historical documents, transhumanist texts, scholarship on transhumanism, works of science-fiction film, literature, and popular culture, we will position the movement as an empirical conduit through which to explore the sociohistorical conditions under which transhumanist ideas and practices have emerged, circulated, and taken up residence. To that end, we will consider the ties of transhumanism to eugenics and massive investments in 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 what some have pointed to as transhumanism's racialized subtext of whiteness. We will furthermore devote considerable attention to the technological singularity, 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 beliefs, practices, and forms of 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 religion, technology, embodiment, and ways of being human.

**Class Format:** Remote

**Requirements/Evaluation:** informal weekly writing, two short review essays, and one 15-page seminar paper

**Prerequisites:** Prior coursework in sociology-anthropology, history, religion, or science and technology studies.

**Enrollment Limit:** 14

**Enrollment Preferences:** Anthropology and Sociology majors and Science and Technology Studies concentrators

**Expected Class Size:** 14

**Grading:** yes pass/fail option, no fifth course option

**Distributions:** (D2)

**This course is cross-listed and the prefixes carry the following divisional credit:**

HSCI 338 (D2) SOC 338 (D2) STS 338 (D2) REL 338 (D2)

Not offered current academic year

## Winter Study -----

### 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

**Grading:** pass/fail only

Not offered current academic year