

History, Philosophy, and Social Studies of Science and Medicine (HIPS)

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Program of Study

The BA program in the History, Philosophy, and Social Studies of Science and Medicine (HIPS) is designed for College students interested in studying science in terms of its historical development, conceptual structure, and social role. Students in the program must do sufficient work in one or more sciences to acquire a sound foundation for studying the nature of science. After securing this basis, they are expected to gain an understanding of how science arose, as well as how the content of scientific thought has changed and is changing, because of both its own internal dynamic and its interaction with the larger society in which it is embedded.

The HIPS program is designed to make possible the study of a wide range of social, historical, and conceptual issues relating to science. Students completing the program follow a number of different careers. Some pursue graduate study in the history and philosophy of science or in some field of science. Others find the program valuable preparation for the study of medicine, law, public policy, or science journalism. More generally, the goal of the program is to provide students with a sound basis on which to interpret and evaluate science and science policy. Some students choose to construct a degree program combining the requirements for the HIPS major with those for a major in the physical or biological sciences. Others, having met the HIPS program requirements, use electives to broaden their liberal arts education.

Students in other fields of study may also complete a minor in HIPS. Information follows the description of the major.

HIPS Sponsor. The Morris Fishbein Center for the History of Science and Medicine sponsors the HIPS program. Further information can be obtained in the center's office (SS 207).

Program Requirements

Elements of the Curriculum. The curriculum of the program contains five principal elements:

1. **The Foundation.** All students must:

- a. complete the general education requirement for the biological sciences with BIOS 10130 plus a topics course or the first two courses of a Fundamental Sequence (BIOS 20180s or 20190s);
 - b. complete the general education requirement in the physical sciences with a physics sequence (PHYS 12100-12200 or equivalent) or a chemistry sequence (CHEM 11100-11200, CHEM 10100-10200, or equivalent), or have earned a score of 5 on the AP Chemistry or Physics test or a score of 4 or 5 on the AP Physics C Mechanics and E&M test;
 - c. complete a calculus sequence (MATH 13100-13200 or higher), or have earned a score of 5 on the AP Calculus BC test; and
 - d. complete the three-quarter sequence surveying the growth of science in Western civilization: Science, Culture, and Society in Western Civilization (HIPS 17300-17400-17501 [or 17502]).
2. **Advanced Science.** In addition to the science courses typically taken as part of the general education requirements, students are expected to take three courses in science, social sciences, or mathematics beyond the introductory level. They select these advanced courses according to their special aims, their area of concentration, and the subject of their bachelor's thesis.
 3. **Areas of Concentration.** All students in the program determine an area of concentration in the anthropology, ethics, history, philosophy, or sociology of science and medicine. In consultation with the program director and their program adviser, students select five courses to constitute this concentration area. For example, some students may be particularly interested in the intellectual and social interactions between changing scientific knowledge and institutions, on the one hand, and evolving social institutions, on the other; a second group may be concerned with either epistemological issues related to the growth of science or moral and political problems attending the employment of technology; and a third group may wish to emphasize the study of science as a social or cultural activity.
 4. **Tutorials.** Students are required to take two tutorial courses; this is typically done early in their program. With a specific focus that changes each year, these tutorials are small classes (from three to ten students) that emphasize discussion and writing. An updated list of courses is available in the HIPS office (SS 207) or at timeschedules.uchicago.edu.
 5. **Bachelor's Thesis and Junior Seminar.** Third-year students enroll in a designated one-quarter seminar (HIPS 29800) that deals with general aspects of history, philosophy, and social studies of science and medicine. In Spring Quarter of their third year, students must discuss their proposal for their bachelor's thesis with the program director. In consultation with the program director, students then sign up for a reading and research course (HIPS 29700) with an appropriate faculty member. In their fourth

year, this research course should lead to a bachelor's thesis (HIPS 29900) that integrates each student's academic studies, bringing them to bear on a significant question related to some historical, conceptual, ethical, or social aspect of science. Fourth-year students also enroll in a two-quarter Bachelor's Thesis Workshop (HIPS 30100), which is comprised of meetings that focus on organizing, researching, writing, and revising the thesis.

Summary of Requirements

General Education	HIPS 17300-17400-17501 (or 17502)	
	BIOS 10130 plus a topics course (BIOS 11000-19999) or BIOS 20181-20182 or higher	
	CHEM 10100-10200, CHEM 11100-11200, or equivalent*, or PHYS 12100-12200 or higher*	
	MATH 13100-13200 or higher*	
Major	3	courses in science, social sciences, or mathematics beyond the introductory level
	5	courses in an area of concentration
	2	HIPS 29400 to 29600 (tutorial courses)
	1	HIPS 29700 (readings and research)
	1	HIPS 29800 (junior seminar)
	1	HIPS 29900 (bachelor's thesis)
	1	HIPS 30100 (thesis workshop)
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* Credit may be granted by examination.

Examples of Concentrations. The following are meant to illustrate areas of concentration. They are not prescriptive, only suggestive. For the particular courses that might constitute their area of concentration, students should consult with the director of the program, examine this course catalog, and visit timeschedules.uchicago.edu.

History and Philosophy of Biological Science

HIPS 22700. Philosophy of Biology
 HIPS 23600. History and Theory of Human Evolution
 HIPS 23900. Biological and Cultural Evolution
 HIPS 25800. Darwin's Romantic Biology
 HIPS 28400. Darwin's Origin of Species

Philosophy of Science

HIPS 20300. Scientific and Technological Change
 HIPS 22000. Philosophy of Science
 HIPS 22300. Philosophy of the Social Sciences
 HIPS 24900. Natural Philosophy, 1200 to 1800
 HIPS 25400. Philosophy of Mind and Science Fiction

History of Medicine and Medical Ethics

HIPS 15000. Science and Medicine Today
 HIPS 21400. Introduction to Medical Ethics
 HIPS 21600. Advanced Medical Ethics
 HIPS 25900. Darwinian Medicine
 HIPS 27300. Medicine and Culture

Admission. To be eligible for admission, students should have completed at least two of the four foundation course sequences listed in the preceding section and should have maintained a 3.2 GPA or higher in previous course work. Admission is completed when students have taken the remaining foundation courses and have formulated a plan of study; this is typically done before their third year. Students should apply for admission no later than Autumn Quarter of their third year to the director of the program. The director advises students about the requirements, arranges a preliminary plan of study, and discusses scheduling conflicts and special cases. Thereafter, a student chooses, in consultation with the director, a BA adviser from the staff.

Honors. Students who meet the following criteria are considered for graduation with honors: (1) overall GPA of 3.3 or higher, (2) completion of a bachelor's thesis of *A* quality, and (3) a majority vote by the faculty in favor of honors.

Grading. Students majoring in HIPS must receive quality grades in all courses meeting the requirements of the degree program, except HIPS 30100 must be taken for *P/F* grading. Nonmajors may take courses for *P/F* grading with consent of instructor.

Advisers. Drawn from many parts of the University, those listed in the Faculty Section of the HIPS program have direct responsibility for admitting students, formulating curriculum, and advising students.

Minor Program in History, Philosophy and Social Studies of Science and Medicine

Students in other fields of study may complete a minor in HIPS, in particular, the minor program in HIPS offers students who are majoring in science the opportunity to gain an understanding of the conceptual, historical, and social contexts in which their disciplines are situated.

The minor requires a total of six courses. Courses in the minor (1) may not be double counted with the student's major(s) or with other minors and (2) may not be counted toward general education requirements. Courses in the minor must be taken for quality grades, and more than half of the requirements for the minor must be met by registering for courses bearing University of Chicago course numbers.

Students should take at least two courses of the sequence "Science, Culture, and Society in Western Civilization" (HIPS 17300-17400-17501 [or 17502]) to meet the general education requirement in civilization studies. Additional courses in

this sequence that are not used to meet the general education requirement can count toward courses required for the minor.

Students must complete one tutorial course.

The remaining five courses for the minor program should constitute an area of concentration in the anthropology, ethics, history, philosophy, or sociology of science and medicine. Students select the courses that constitute this concentration in consultation with the program director and their program adviser.

Students who elect the minor program in HIPS should meet with the program director before the end of Spring Quarter of their third year to declare their intention to complete the program. The director's approval for the minor program should be submitted to the student's College adviser by the deadline above on a form obtained from the adviser.

The following groups of courses would satisfy the requirements for a minor in HIPS. They are only meant to illustrate possible plans of study; they are not prescriptive.

Tutorial: HIPS 29405. Evolution and Pragmatism
Concentration in History and Philosophy of Biology:
 HIPS 22700. Philosophy of Biology
 HIPS 23600. History and Theory of Human Evolution
 HIPS 23900. Biological and Cultural Evolution
 HIPS 25800. Darwin's Romantic Biology
 HIPS 28400. Darwin's Origin of Species

Tutorial: HIPS 29606. Medicine, Disease, and Death in American History
Concentration in History of Medicine and Medical Ethics:
 HIPS 17501. Science, Culture, and Society in Western Civilization III:
 Medicine since the Renaissance (if this course is not used to meet general education requirements)
 HIPS 21400. Introduction to Medical Ethics
 HIPS 21600. Advanced Medical Ethics
 HIPS 27300. Medicine and Culture

Faculty

J. Comaroff, A. Davidson, A. Johns, J. Lantos, J. Masco, R. Richards, L. Ross, W. Wimsatt, A. Winter

Courses: History, Philosophy and Social Studies of Science and Medicine (HIPS)

Foundation Sequence

17300-17400-17501 or 17502. Science, Culture, and Society in Western Civilization I, II, III. (=HIST 17300-17400-17501 or 17502) *Taking these*

courses in sequence is recommended but not required. This sequence meets the general education requirement in civilization studies. This three-quarter sequence focuses on the origins and development of science in the West. Our aim is to trace the evolution of the biological, psychological, natural, and mathematical sciences as they emerge from the cultural and social matrix of their periods and, in turn, affect culture and society.

17300. The first quarter examines the sources of Greek science in the diverse modes of ancient thought and its advance through the first centuries of our era. We look at the technical refinement of science, its connections to political and philosophical movements of fifth- and fourth-century Athens, and its growth in Alexandria. *R. Richards. Autumn.*

17400. The second quarter is concerned with the period of the scientific revolution: the sixteenth to eighteenth centuries. The principal subjects are the work of Copernicus, Kepler, Galileo, Vesalius, Harvey, Descartes, and Newton. *A. Johns. Winter.*

17501. Medicine since the Renaissance. This course is an examination of various themes in the history of medicine in Western Europe and America since the Renaissance. Topics include key developments of medical theory (e.g., the circulation of the blood and germ theory), relations between doctors and patients, rivalries between different kinds of healers and therapists, and the development of the hospital and laboratory medicine. *A. Winter. Spring.*

17502. Modern Science. The advances science has produced have transformed life beyond anything that a person living in 1833 (when the term “scientist” was first coined) could have anticipated. Yet science continues to pose questions that are challenging and, in some instances, troubling. How will our technologies affect the environment? Should we prevent the cloning of humans? Can we devise a politically acceptable framework for the patenting of life? Such questions make it vitally important that we try to understand what science is and how it works, even if we never enter labs. This course uses evidence from controversies (e.g., Human Genome Project, International Space Station) to throw light on the enterprise of science itself. *J. Evans. Spring.*

Tutorials

29400-29500-29600. Tutorial. *Autumn, Winter, Spring.*

Seminar and Research

29700. Readings and Research in History, Philosophy, and Social Studies of Science and Medicine. *Students are required to submit the College Reading and Research Course Form. Autumn, Winter, Spring.*

29800. Junior Seminar: My Favorite Readings in the History and Philosophy of Science. (=HIST 25502) This course introduces some of the most important and influential accounts of science to have been produced in modern

times. It provides an opportunity to discover how philosophers, historians, anthropologists, and sociologists have grappled with the scientific enterprise, and to assess critically how successful their efforts have been. Authors likely include Karl Popper, Thomas Kuhn, Robert Merton, Steven Shapin, and Bruno Latour. *R. Richards. Winter.*

29900. Bachelor's Thesis. Students are required to submit the College Reading and Research Course Form. This is a research course for independent study related to thesis preparation. *Autumn, Winter, Spring.*

30100. Bachelor's Thesis Workshop. *HIPS 30100 must be taken for P/F grading.* Students register only once (in Autumn or Winter Quarter) but attend for two quarters. The purpose of this course is to assist students in organizing, researching, writing, and revising their thesis. *Autumn, Winter.*

Other Courses in the Major

Courses other than those included in the preceding sample curricula or in the list that follows may be appropriate for HIPS students; visit timeschedules.uchicago.edu for possible additions.

17300-17400-17501 or 17502. Science, Culture, and Society in Western Civilization I, II, III. (=HIST 17300-17400-17501 or 17502) *Taking these courses in sequence is recommended but not required. This sequence meets the general education requirement in civilization studies. R. Richards, Autumn; A. Johns, Winter; Staff, Spring.*

20500. Intermediate Logic I: Incompleteness. (=CHSS 33600, PHIL 29400/39600) *PQ: Consent of instructor. M. Kremer. Spring.*

20700. Elementary Logic. (=CHSS 33500, PHIL 20100/30000) *PQ: Basic knowledge of concepts and principles of symbolic logic. Course not for field credit. K. Davey. Autumn.*

20800. Evolutionary Processes. (=BIOS 29306, CHSS 34800, ECEV 31000, EVOL 31000) *PQ: Consent of instructor. This course does not meet requirements for the biological sciences major. L. Van Valen. Autumn.*

21000. Introduction to Ethics. (=PHIL 21000) *A. Ford. Autumn.*

21100. The Practice of Anthropology: Celebrity and Science in Paleoanthropology. (=ANTH 21406/38300) *R. Tuttle. Winter.*

21200. Big Science and the Birth of the National Security State. (=ANTH 22400/34900) *J. Masco. Winter.*

21301. The Anthropology of Science. (=ANTH 22105/32305) *J. Masco. Spring.*

21911. Medical Ethics: Who Decides and on What Basis. (=BIOS 29313, BPRO 22610, HIST 25009/35009, PHIL 21610/31610) *PQ: Third- or fourth-year standing. D. Brudney, J. Lantos. A Winter. Spring.*

22300. Philosophy of Social Science. (=CHSS 37700, PHIL 22900/32900) *W. Wimsatt. Winter.*

22601. Medicine and Society in Twentieth-Century China. (=ANTH 23600) *J. Farquhar. Not offered 2010–11; will be offered 2011–12.*

23000. The Organization of Knowledge. (=BPRO 23500, HUMA 23502) *PQ: Third- or fourth-year standing. H. Sinaiko, W. Sterner. Spring.*

23400. Is Development Sustainable? (=BPRO 23400, ENST 24400, NCDV 27300, PBPL 24400) *PQ: Third- or fourth-year standing required; background in environmental issues not required. Spring.*

23600. Classical Readings in Anthropology: History and Theory of Human Evolution. (=ANTH 21102/38400, EVOL 38400) *R. Tuttle. Winter.*

23700. Apes and Human Evolution. (=ANTH 28600/38600, BIOS 23253, EVOL 38600) *BIOS 23241 recommended. R. Tuttle. Spring.*

23900. Biological and Cultural Evolution. (=BIOS 29286, BPRO 23900, CHSS 37900, LING 11000, PHIL 22500/32500) *PQ: Third- or fourth-year standing, or consent of instructor required; core background in genetics and evolution recommended. This course does not meet requirements for the biological sciences major. W. Wimsatt, S. Mufwene. Winter.*

24000. Evolution of the Hominoidea. (=ANTH 28100/38100, EVOL 38100) *PQ: Third- or fourth-year standing and consent of instructor. This course carries 200 units of credit. R. Tuttle. Spring.*

24300. Foucault and the History of Sexuality. (=GNDR 23100, PHIL 24800) *PQ: Prior philosophy course or consent of instructor. A. Davidson. Autumn.*

24800. Gender and History and Science Technology and Medicine. (=CHSS 45100, HIST 25100/35100) *A. Winter. Spring.*

25700. Science in Victorian Britain. (=CHSS 31500, HCUL 31100, HIST 21101/31101) *A. Winter. Winter.*

25901. Evolution of Mind and Morality: Nineteenth to Twenty-First Centuries. (=CHSS 35900, HIST 25501/35501, PHIL 24300/34300, PSYC 28200) *PQ: Third- or fourth-year standing. R. Richards. Autumn.*

26000. History of Philosophy II: Medieval and Early Modern Philosophy. (=PHIL 26000) *PQ: Completion of the general education requirement in humanities required; PHIL 25000 recommended. B. Callard. Winter.*

26203. Nature/Culture. (=ANTH 23805/43805) *J. Masco. Winter.*

26302. Human Condition: Self as Subject/Object/Machine. (=HUMA 26303) *M. Browning. Autumn.*

26502. Social Studies of Science. (=SOCI 20148/30148) *J. Evans. Spring.*

26701. Goethe: Literature, Science, and Philosophy. (=CHSS 31202, GRMN 35304/25304, HIST 25304/35304, PHIL 30610/20610) *Knowledge of German helpful. R. Richards. Winter.*

27300. Medicine and Culture. (=ANTH 24300/40300) *J. Comaroff. Spring.*

28002. Sciences of Memory in the Twentieth Century. (=CHSS 31502, HIST 25510) *A. Winter. Spring.*

28101. Psychoanalysis and Philosophy. (=PHIL 38209) *PQ: Open to students who are majoring in philosophy with advanced standing. J. Lear, C. Vogler. Winter.*

28202. Topics in Philosophy of Science: Mechanism and Causation. (=PHIL 21109/31109) *Background in science not required. B. Fogel. Spring.*

28601. Environment and the Body. (=ENST 28700, HIST 25505) *A. Gugliotta. Winter.*

28801. Environmental Law. (=ENST 23100, LLSO 23100, PBPL 23100) *PQ: Third- or fourth-year standing, or consent of instructor. Autumn.*