Committee on Conceptual and Historical Studies of Science

Chair
• Adrian Johns

Professors
• Fredrik Albritton Jonsson, History
• Lorraine Daston, Social Thought
• Arnold Davidson, Philosophy
• James A. Evans, Sociology
• Judith B. Farquhar, Anthropology
• Jan Goldstein, History
• Adrian Johns, History
• Arnold Davidson, Philosophy
• Amy Edmondson, Sociology
• Karin Knorr Cetina, Sociology and Anthropology
• Joseph Masco, Anthropology
• Karl Matlin, Department of Surgery
• Salikoko Mufwene, Linguistics
• Robert J. Richards, History
• Michael Rossi, History
• James T. Sparrow, History
• Stephen M. Stigler, Statistics

Emeritus Faculty
• Robert Perlman, Pediatrics
• Willard Wimsatt, Philosophy

The Committee on Conceptual and Historical Studies of Science (CHSS) is an interdisciplinary graduate program dedicated to advancing social, historical, and philosophical perspectives on science. Its areas of interest are broad, extending across the sciences and from the ancient world to the present day. Its faculty derive from many departments in the University, but particularly from History, Sociology, Anthropology, and Philosophy. We currently have major strengths in the study of evolutionary biology, psychology, and medicine, and in issues of the social activity of science, such as those relating to scientific authority, credibility, communication, and intellectual property. Students in the Ph.D. program have an opportunity to investigate such aspects of the scientific enterprise in depth, within its many rich historical, social, and philosophical contexts. They are also encouraged to grapple with the practices and approaches of science itself.

A brief description of the Committee’s degree requirements is provided below, along with a representative list of courses that have been taught in recent years. For more complete information, you are encouraged to consult the website at http://chss.uchicago.edu/. This site contains an up to date description of faculty research interests, a complete statement of degree requirements, descriptions of individual courses being taught this year, a calendar of events (including meetings of the Committee’s regular Workshop in the History, Philosophy, and Sociology of Science), a list of students who have received Ph.D.s from the Committee with the titles of their dissertations, and more.

Those with questions about the Committee should write to the Secretary, The Committee on Conceptual and Historical Studies of Science, The University of Chicago, 1126 East 59th Street, Chicago, IL 60637 (bethcalderon@uchicago.edu (bbmackev@uchicago.edu)).

Application

New students are admitted to the Committee through the Division of the Social Sciences. Applicants will be expected to submit undergraduate transcripts, scores from the general Graduate Record Examination, three letters of recommendation, short descriptions of their interests and/or reasons for wanting to study in CHSS, and a writing sample.

The application process for admission and financial aid for all Social Sciences graduate programs is administered through the divisional Office of the Dean of Students. The Application for Admission and Financial Aid, with instructions, deadlines and department specific information is available online at: https://socialsciences.uchicago.edu/admissions/apply. Questions pertaining to admissions and aid should be directed to admissions@ssd.uchicago.edu (admissions@ssd.uchicago.edu) or (773) 702-8415.
Our application process is now entirely online (paperless). **All supporting material** - including letters of recommendation, transcripts, and writing samples (if required by a specific department) - must be submitted electronically through the online application.

More information about applying to programs in the University of Chicago's Division of the Social Sciences can be found at https://socialsciences.uchicago.edu/admissions.

### Degree Requirements

Every new student in CHSS is assigned an advisor, with whom he or she designs an individual program of study. Because the interests of students within CHSS vary widely, so too do these programs. Yet all students are expected to fulfill certain common requirements. Full and up to date details are given on the website, but the main elements are described here.

Students choose one of the following options:

1. **SCIENCE OPTION**: The student may earn a master’s degree in a science (here understood to include mathematics, statistics, and social science).
2. **PHILOSOPHY OPTION**: The student may earn a master’s degree in philosophy.
3. **HISTORY OPTION**: The student may earn a master’s degree in history.

All students must complete a total of at least eighteen courses at the University for a grade of B or better, including at least seven CHSS courses. They must maintain at least a B+ average every quarter. Those selecting the philosophy or history options must take a coherent series of six courses in a scientific area at the University, approved by the committee and of an appropriately advanced nature. This will normally mean that students must take at least some portion of their science work at a graduate level. Note that if a student enters the program with a master’s degree in an appropriate area, the committee determines what level of credit is given for it.

The expected timetable is that students entering with a master’s degree will complete coursework by the end of the second year, and those entering without will complete it by the end of year three (see the website for this and other details of the expected timetable).

Among the coursework of the first two years, students should take three courses offered by the committee: Philosophy of Science, History of Science, and Introduction to Science Studies.

Students must then pass two oral examinations. Each student has the option of taking the exams in history of science, philosophy of science, sociology of science, or anthropology of science; but at least one of the exams must be in either history of science or philosophy of science. These exams are, in part, designed by the students themselves.

At this point the student writes a dissertation proposal, and defends it at a hearing before his or her dissertation committee. He or she is then considered to have advanced to Ph.D. candidacy, and proceeds to write the dissertation itself.

### Courses

The department website offers descriptions of representative courses offered in recent years: http://chss.uchicago.edu/page/courses

#### Conceptual/Historical Studies of Science Courses

**CHSS 30927. Knowledge on a Platter: Comparative Perspectives on Knowledge Texts in the Ancient World. 100 Units.**

In various ancient cultures, sages created the new ways of systematizing what was known in fields as diverse as medicine, politics, sex, dreams, and mathematics. These texts did more than present what was known; they exemplified what it means to know - and also why reflective, systematic knowledge should be valued more highly than the knowledge gained from common sense or experience. Drawing on texts from Ancient India, Greece, Rome, and the Near East, this course will explore these early templates for the highest form of knowledge and compare their ways of creating fields of inquiry: the first disciplines. Texts include the *Arthashastra*, the Hippocratic corpus, *Deuteronomy*, the *Kama Sutra*, and Aristotle’s *Parva naturalia*.

Instructor(s): Lorraine Daston and Wendy Doniger

Terms Offered: Spring. course taught spring 2018

Prerequisite(s): Graduate seminar - consent is required. Course is taught the first five weeks of the quarter (3/26/18-4/30/18) twice a week.

Equivalent Course(s): HREL 30927, SALC 30927, KNOW 31415, SCTH 30927
CHSS 32000. Colloquium: Introduction to Science Studies. 100 Units.

This course explores the interdisciplinary study of science as an enterprise. During the twentieth century, sociologists, historians, philosophers, and anthropologists all raised interesting and consequential questions about the sciences. Taken together their various approaches came to constitute a field, "science studies." The course provides an introduction to this field. Students will not only investigate how the field coalesced and why, but will also apply science-studies perspectives in a fieldwork project focused on a science or science-policy setting. Among the topics we may examine are the sociology of scientific knowledge and its applications, actor-network theories of science, constructivism and the history of science, images of normal and revolutionary science, accounts of research in the commercial university, and the examined links between science and policy.

Instructor(s): A. Johns, K. Knorr Cetina
Terms Offered: Autumn
Equivalent Course(s): ANTH 32305, HIST 56800, SOCI 40137

CHSS 32708. Planetary Britain, 1600–1900. 100 Units.

What were the causes behind Britain's Industrial Revolution? In the vast scholarship on this problem, one particularly heated debate has focused on the imperial origins of industrialization. How much did colonial resources and markets contribute to economic growth and technological innovation in the metropole? The second part of the course will consider the global effects of British industrialization. To what extent can we trace anthropogenic climate change and other planetary crises back to the environmental transformation wrought by the British Empire? Topics include ecological imperialism, metabolic rift, the sugar revolution, the slave trade, naval construction and forestry, the East India Company, free trade and agriculture, energy use and climate change.

Instructor(s): F. Albirton Jonsson
Terms Offered: Winter
Equivalent Course(s): HIST 32708, ENST 22708, HIPS 22708, HIST 22708

CHSS 32800. Phenomenology & Madness—Perspectives from Cultural Psychiatry. 100 Units.

This seminar explores the dynamics of Israeli culture and society through a combination of weekly screenings of Israeli fiction and documentary films with readings from ethnographic and other relevant research. Among the (often overlapping) topics to be covered in this examination of the institutional and ideological construction of Israeli identity/ies: the absorption of immigrants; ethnic, class, and religious tensions; the kibbutz; military experience; the Holocaust; evolving attitudes about gender and sexuality; the struggle for minorities' rights; and Arab-Jewish relations.

Instructor(s): Francis McKay
Terms Offered: Spring, TBD
Prerequisite(s): Upper level undergraduates admitted with consent.
Equivalent Course(s): HIPS 22800, ANTH 24355, ANTH 35135, MAPS 32800

CHSS 32805. Nature/Culture. 100 Units.

Exploring the critical intersection between science studies and political ecology, this course interrogates the contemporary politics of "nature." Focusing on recent ethnographies that complicated our understandings of the environment, the seminar examines how conceptual boundaries (e.g., nature, science, culture, global/local) are established or transgressed within specific ecological orders.

Instructor(s): J. Masco
Terms Offered: TBD
Equivalent Course(s): ANTH 43805, HIPS 26203, ANTH 23805

CHSS 32900. History of Statistics. 100 Units.

This course covers topics in the history of statistics, from the eleventh century to the middle of the twentieth century. We focus on the period from 1650 to 1950, with an emphasis on the mathematical developments in the theory of probability and how they came to be used in the sciences. Our goals are both to quantify uncertainty in observational data and to develop a conceptual framework for scientific theories. This course includes broad views of the development of the subject and closer looks at specific people and investigations, including reanalyses of historical data.

Instructor(s): S. Stigler
Terms Offered: Spring
Prerequisite(s): Prior statistics course
Equivalent Course(s): HIPS 25600, STAT 36700, STAT 26700

CHSS 33300. Introduction to the Philosophy of Science. 100 Units.

We will begin by trying to explicate the manner in which science is a rational response to observational facts. This will involve a discussion of inductivism, Popper's deductivism, Lakatos and Kuhn. After this, we will briefly survey some other important topics in the philosophy of science, including underdetermination, theories of evidence, Bayesianism, the problem of induction, explanation, and laws of nature. (B) (II)

Instructor(s): T. Pashby
Terms Offered: Autumn
Note(s): Undergrads enroll in sections 01 & 02. Graduates enroll in section 03.
Equivalent Course(s): HIST 25109, HIST 35109, PHIL 32000, HIPS 22000, PHIL 22000

CHSS 33500. Elementary Logic. 100 Units.

An introduction to the techniques of modern logic. These include the representation of arguments in symbolic notation, and the systematic manipulation of these representations in order to show the validity of arguments. Regular homework assignments, in class test, and final examination.

Instructor(s): T. Pashby
Terms Offered: Autumn
Prerequisite(s): No prerequisites. Course not for field credit.
Note(s): Undergrads enroll in sections 01 through 08. Graduates enroll in section 09.
Equivalent Course(s): HIPS 20700, PHIL 30000, PHIL 20100
CHSS 33600. Intermediate Logic. 100 Units.
In this course, we will prove the soundness and completeness of deductive systems for both sentential and first-order predicate logic. We will also establish related results in elementary model theory, such as the compactness theorem for first-order logic, the Löwenheim-Skolem theorem and Lindström’s theorem. (B) (II)
Instructor(s): A. Vasudevan Terms Offered: Winter
Prerequisite(s): Elementary Logic or the equivalent.
Note(s): Undergrads enroll in sections 01 & 02. Graduates enroll in section 03.
Equivalent Course(s): HIPS 20500,PHIL 39600,PHIL 29400

CHSS 34913. Victorian Science. 100 Units.
This course examines how Victorians sought to understand the natural world, and how their scientific work helped develop modern intellectual conventions, social relations, and institutions. We will study a wide range of topics from the 1830s through the beginning of the twentieth century in order to develop a kind of panoramic of scientific life and to determine when key features of modern science came into being.
Instructor(s): A. Winter Terms Offered: Winter

CHSS 35039. History of Perception. 100 Units.
Knowing time. Feeling space. Smelling. Seeing. Touching. Tasting. Hearing. Are these universal aspects of human consciousness, or particular experiences contingent upon time, place, and culture? How do we come to know about our own perceptions and those of others? This course examines these and related questions through detailed readings of primary sources, engagement in secondary scholarship in the history and anthropology of sensation, and through close work with participants’ own sensations and perceptions of the world around them.
Instructor(s): M. Rossi Terms Offered: Winter
Prerequisite(s): Upper-level undergraduate
Equivalent Course(s): HIST 35039,LLSO 23501,HIPS 25415,HIST 25415

CHSS 35415. History of Information. 100 Units.
"Information" in all its forms is perhaps the defining phenomenon of our age. But although we tend to think of it as something distinctively modern, in fact it came into being through a long history of thought, practice, and technology. This course will therefore suggest how to think historically about information. Using examples that range from the Middle Ages to the twenty-first century, we shall explore how different societies have conceptualized the subject, and how they have sought to control it. We shall address how information has been collected, classified, circulated, contested, and destroyed. The aim is to provide a different kind of understanding of information practices—one that can be put to use in other historical inquiries, as well as casting an unfamiliar light on our own everyday lives.
Instructor(s): A. Johns Terms Offered: Winter
Equivalent Course(s): HIST 35415,LLSO 23501,HIPS 25415,HIST 25415

CHSS 35421. Censorship from the Inquisition to the Present. 100 Units.
Collaborative research seminar on the history of censorship and information control, with a focus on the history of books and information technologies. The class will meet in Special Collections, and students will work with the professor to prepare an exhibit, The History of Censorship, to be held in the Special Collections exhibit space in the spring. Students will work with rare books and archival materials, design exhibit cases, write exhibit labels, and contribute to the exhibit catalog. Half the course will focus on censorship in early modern Europe, including the Inquisition, the spread of the printing press, and clandestine literature in the Renaissance and Enlightenment. Special focus on the effects of censorship on classical literature, both newly rediscovered works like Lucretius and lost books of Plato, and authors like Pliny the Elder and Seneca who had been available in the Middle Ages but became newly controversial in the Renaissance. The other half of the course will look at modern and contemporary censorship issues, from wartime censorship, to the censorship of comic books, to digital-rights management, to free speech on our own campus. Students may choose whether to focus their own research and exhibit cases on classical, early modern, modern, or contemporary censorship. This course is part of the College Course Cluster, The Renaissance.
Instructor(s): A. Palmer & S. McManus Terms Offered: Autumn
Prerequisite(s): Admission by consent of instructor
Equivalent Course(s): CLCV 25417,CLAS 35417,HIST 35421,HIPS 25421,KNOW 21403,KNOW 31403,RLST 22121,HREL 34309,SIGN 26010,HIST 25421

CHSS 37502. Energy and Energy Policy. 100 Units.
This course shows how scientific constraints affect economic and other policy decisions regarding energy, what energy-based issues confront our society, how we may address them through both policy and scientific study, and how the policy and scientific aspects can and should interact. We address specific technologies, both those now in use and those under development, and the policy questions associated with each, as well as with more overarching aspects of energy policy that may affect several, perhaps many, technologies.
Instructor(s): S. Berry, G. Tolley Terms Offered: Autumn
Prerequisite(s): PQ: Third- or fourth-year standing. For ECON majors who want ECON credit for this course (ECON 26800; PQ is ECON 20100)
Equivalent Course(s): ECON 26800,ENST 29000,PPHL 39201,PPHA 39201,PSMS 39000,BPRO 29000
CHSS 37900. Biological and Cultural Evolution. 100 Units.
This course draws on readings in and case studies of language evolution, biological evolution, cognitive development and scaffolding, processes of socialization and formation of groups and institutions, and the history and philosophy of science and technology. We seek primarily to elaborate theory to understand and model processes of cultural evolution, while exploring analogies, differences, and relations to biological evolution. This has been a highly contentious area, and we examine why. We try to evaluate what such a theory could reasonably cover and what it cannot.
Instructor(s): S. Mufwene, W. Wimsatt Terms Offered: Winter
Prerequisite(s): Third- or fourth-year standing or consent of instructor required; core background in evolution and genetics strongly recommended.
Note(s): This course does not meet requirements for the biological sciences major. CHDV Distribution: A
Equivalent Course(s): CHDV 23930, ANTH 28615, ANTH 38615, LING 11100, LING 39286, CHDV 33930, BIOS 29286, HIPS 23900, PHIL 22500, PHIL 32500, NCDV 27400, BPRO 23900

CHSS 38307. Global Environmental Humanities. 100 Units.
This course is an introduction to the interdisciplinary field of environmental humanities, which calls on us to study the global environment, and the threats posed by globalization and climate change, using the tools of history, cultural studies, philosophy, and literature. Reading texts from these and other disciplines, we will attend to the ways that “environment” registers in political, aesthetic, and social life across the globe. Sample authors: Fernand Braudel, William Cronon, Dipesh Chakrabarty, Amitav Ghosh, Ursula Heise, Joseph Masco, Jed Purdy, Anna Tsing.
Instructor(s): Gabel, Isabel Terms Offered: Autumn. Autumn 2017
Prerequisite(s): 2nd year undergrads or later
Note(s): Seminar.
Equivalent Course(s): HIST 25422, HIPS 28307

CHSS 38308. Science and Selfhood in Modern Europe. 100 Units.
This course explores the role of the sciences in changing ideas of selfhood in 19th- and 20th-century Europe. How did the proliferation of new forms of knowledge about humans (biological, psychiatric, evolutionary, sociological, anthropological) transform peoples’ understandings of themselves as biological beings, as bearers of consciousness, as subjects and citizens? This course pairs primary sources with secondary texts from European history, history of science, and history of the human sciences.
Instructor(s): Gabel, Isabel Terms Offered: Winter. Winter 2018
Prerequisite(s): 2nd year undergraduates or later.
Note(s): Seminar
Equivalent Course(s): HIST 25423, HIPS 28308

CHSS 39516. History of Skepticism. 100 Units.
Before we ask what is true or false, we must ask how we can know what is true or false. This course examines the vital role doubt and philosophical skepticism have played in the Western intellectual tradition, from pre-Socratic Greece through the Enlightenment, with a focus on how Criteria of Truth—what kinds of arguments are considered legitimate sources of certainty—have changed over time. The course will examine dialog between skeptical and dogmatic thinkers, and how many of the most fertile systems in the history of philosophy have been hybrid systems which divided the world into things which can be known, and things which cannot. The course will touch on the history of atheism, heresy and free thought, on fideism and skeptical religion, and will examine how the Scientific Method is itself a form of philosophical skepticism. Primary source readings will include Plato, Sextus Empiricus, Lucretius, Ockham, Pierre Bayle, Montaigne, Descartes, Francis Bacon, Hobbes, Voltaire, Diderot, and others.
Instructor(s): A. Palmer Terms Offered: Winter
Note(s): No prerequisites; first-year students welcome.
Equivalent Course(s): HIST 39516, CLCV 28517, CLAS 38517, HIPS 29516, KNOW 21406, KNOW 31406, RLST 22123, HREL 39516, SIGN 26011, HIST 29516

CHSS 40201. Reason and Religion. 100 Units.
The quarrel between reason and faith has a long history. The birth of Christianity was in the crucible of rationality. The ancient Greeks privileged this human capacity above all others, finding in reason the quality wherein man was closest to the gods, while the early Christians found this viewpoint antithetical to religious humility. As religion and its place in society have evolved throughout history, so have the standing of, and philosophical justification for, non-belief on rational grounds. This course will examine the intellectual and cultural history of arguments against religion in Western thought from antiquity to the present. Along the way, of course, we will also examine the assumptions bound up in the binary terms “religion” and “reason.”
Instructor(s): Shadi Bartsch and Robert Richards Terms Offered: Winter
Prerequisite(s): Consent required: Email sbartsch@uchicago.edu a few sentences describing your background and what you hope to get out of this seminar.
Equivalent Course(s): DVPR 46616, KNOW 40201, CLAS 46616, HIST 66606
CHSS 41920. The Evolution of Language. 100 Units.
How did language emerge in the phylogeny of mankind? Was its evolution saltatory or gradual? Did it start late or early and then proceed in a protracted way? Was the emergence monogenetic or polygenetic? What were the ecological prerequisites for the evolution, with the direct ecology situated in the hominine species itself, and when did the prerequisites obtain? Did there ever emerge a language organ or is this a post-facto construct that can be interpreted as a consequence of the emergence of language itself? What function did language evolve to serve, to enhance thought processes or to facilitate rich communication? Are there modern “fossils” in the animal kingdom that can inform our scholarship on the subject matter? What does paleontology suggest? We will review some of the recent and older literature on these questions and more.
Instructor(s): S. Mufwene Terms Offered: Winter
Equivalent Course(s): ANTH 47305, CHDV 41920, EVOL 41920, PSYC 41920, LING 21920, CHDV 21920, LING 41920

CHSS 42300. Scientific/Technological Change. 100 Units.
No description available.
Equivalent Course(s): HIPS 20300

CHSS 58108. The Philosophy of Howard Stein. 100 Units.
Howard Stein’s impressive body of work is notable for its tight integration of history of science with philosophy of science. Topics include: theories of spacetime structure (Newtonian and relativistic), the conceptual structure of quantum mechanics, the methodology of science in general and the character of scientific knowledge, and the history of physics and mathematics. Readings by Stein will be supplemented by primary historical texts and secondary philosophical literature, including selections from a forthcoming edited collection on Stein. (II)
Instructor(s): T. Pashby Terms Offered: Winter
Equivalent Course(s): PHIL 58108
Font Notice

This document should contain certain fonts with restrictive licenses. For this draft, substitutions were made using less legally restrictive fonts. Specifically:

- Times was used instead of Trajan.
- Times was used instead of Palatino.

The editor may contact Leepfrog for a draft with the correct fonts in place.