Committee on Conceptual and Historical Studies of Science

Chair
• Adrian Johns

Professors
• Lorraine Daston, Social Thought
• Arnold Davidson, Philosophy
• Judith B. Farquhar, Anthropology
• Michael Foote, Geophysical Sciences
• Jan Goldstein, History
• Adrian Johns, History
• Karin Knorr Cetina, Sociology and Anthropology
• Karl Matlin, Department of Surgery
• Salikoko Mufwene, Linguistics
• Robert J. Richards, History
• Stephen M. Stigler, Statistics
• Alison Winter, History

Associate Professors
• James A. Evans, Sociology
• Joseph Masco, Anthropology
• E. Glen Weyl, Economics

Emeritus Faculty
• Leo Kadanoff, Physics and Mathematics
• Robert Perlman, Pediatrics
• William C. 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
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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).

**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 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 http://socialsciences.uchicago.edu/page/prospective

**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/courses/

CONCEPTUAL/HISTORICAL STUDIES OF SCIENCE COURSES

CHSS 30924. Science, Modernity, and Anti-Modernity. 100 Units.
Since the eighteenth century, science (and later science-based technology) has been protagonist of narratives about modernity- and anti-modernity. For the champions of modernity, science since the seventeenth century has been the driving force behind Enlightenment, economic development, and intellectual and political progress. For the critics of modernity, science has destroyed religion, blighted poetry, and traded virtuous simplicity for military and industrial competition. This course examines the strongest versions of both narratives and tests them against the actual history of science.
Instructor(s): L. Datson Terms Offered: Spring
Equivalent Course(s): HIST 44905, SCTH 30924
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: Winter (Tentative)
Equivalent Course(s): ANTH 23805, ANTH 43805, HIPS 26203

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): STAT 26700, HIPS 25600, STAT 36700

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): K. Davey Terms Offered: Winter

CHSS 33500. Elementary Logic. 100 Units.
An introduction to the concepts and principles of symbolic logic. We learn the syntax and semantics of truth-functional and first-order quantificational logic, and apply the resultant conceptual framework to the analysis of valid and invalid arguments, the structure of formal languages, and logical relations among sentences of ordinary discourse. Occasionally we will venture into topics in philosophy of language and philosophical logic, but our primary focus is on acquiring a facility with symbolic logic as such.
Instructor(s): K. Davey Terms Offered: Autumn
Note(s): Course not for field credit.
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 standard deductive systems for both sentential and first-order 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
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 panorama of scientific life and to determine when key features of modern science came into being.
Instructor(s): A. Winter Terms Offered: Winter

CHSS 35110. Philosophy of History: Narrative and Explanation. 100 Units.
This lecture-discussion course will trace different theories of explanation in history from the nineteenth century to the present. We will examine the ideas of Humboldt, Ranke, Dilthey, Collingwood, Braudel, Hempel, Danto, and White. The considerations will encompass such topics as the nature of the past such that one can explain its features, the role of laws in historical explanation, the use of Verstehen history as a science, the character of narrative explanation, the structure of historical versus other kinds of explanation, and the function of the footnote. (II) (V)
Instructor(s): R. Richards Terms Offered: Winter
Equivalent Course(s): HIST 35110, HIPS 25110, PHIL 20506, PHIL 30506, HIST 25110

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 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 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, PBPL 29000, PPHA 39201, PSMS 39000, BPRO 29000
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CHSS 39618. A Global History of Cold War Science and Technology. 100 Units.
What was the effect of the Cold War upon the different sciences? What roles did scientists themselves have in shaping Cold War politics? What new issues emerge when we look at the Cold War in its various global contexts? How did the Cold War transform the physical world and our ideas about it? And how did it help modify the very idea of science? Or how can history of science and technology transform common views of the Cold War? What legacies from that period configure current societies and their mutual relationships at local and global scales? These are some of the issues that this seminar will address. One of the main goals will be to provide students with tools to write their own short research papers on a topic and area of their own interest relating to this lasting period in recent history.
Terms Offered: Spring
Equivalent Course(s): HIST 25411,HIPS 29618

CHSS 39619. History and Theory of Pain and Passions. 100 Units.
The aim of this course is to introduce different traditions within the history of emotions and passions. We will begin by taking pain as key example of a subjective experience, and move from there to some of the most relevant historiographical traditions and theoretical problems involved in the understanding and comprehension of emotions and other subjective experiences: psico-history, history of the senses, affective turn, history of emotions, moral economy of emotions, history of experiences, etc. The course will explore the methodological conditions and theoretical constrains involved in writing on the history of pain and passions. In addition, we will also explore how research on the emotional life of the past may employ some other means of public engagement, especially Museums and Gallery exhibitions.
Instructor(s): Javier Moscoso Terms Offered: Spring. Spring 2016 only.
Equivalent Course(s): HIPS 29619
CHSS 40200. Case Studies on the Formation of Knowledge-I. 100 Units.
MODULE 1: APPROACHES TO KNOWLEDGE (SBZ, JG) The goal of this module is to identify central issues/debates in the theory of knowledge over the past century. Students will be introduced to issues in the sociology of knowledge, to arguments against constructivist perspectives and to 21st century scientific standards for knowledge production.

MODULE 2: DEMOCRATIC KNOWLEDGE (SBZ, WH) This module offers a variation on studies of the epistemic powers of democracy. Instead of asking questions such as how effective democracies are at gathering the knowledge they need to function, the module looks at what forms of knowledge democracies need to assume—for example, the validity of decisions taken by the many—in order to justify their own existence as a (“superior”) form of government.

MODULE 3: PROGRESS BACKWARDNESS (CA, JP) Developmental thinking has been central to the European study of society. In the wake of the encounter with the New World increasing global commercial and imperial connections, the concepts of civilization and progress have been twinned with accounts of savagery, barbarism, backwardness. Much of modern social science originated in efforts in the late 19th century to understand what had made western Europe’s path of economic development unique. This module explores theories of progress modernization from Scottish Enlightenment stadial theories through liberal and Marxist developmental accounts in the 19th century to modernization theories in the 20th.

Instructor(s): S. Bartsch-Zimmer, J. Gilbert, W. Howell, C. Ando, J. Pitts
Terms Offered: Winter
Prerequisite(s): Undergraduates may enroll with instructor consent.
Equivalent Course(s): HIST 40200, CLAS 41616, PLSC 40202, SCTH 40200, SOCI 40209, CMLT 41802, MAPH 40200, MAPS 40201, KNOW 40200

CHSS 40300. Case Studies on the Formation of Knowledge-II. 100 Units.
MODULE 1: FOUNDATIONS OF PSYCHOLOGY IN LINGUISTICS AND BIOLOGY (RR, JG) This module will examine the ways several established disciplines, particularly linguistics and biology, came together in the mid-19th century to establish the science of psychology. Both linguistics and biology offered empirical and theoretical avenues into the study of mind. Researchers in each advanced their considerations either in complementary or oppositional fashion.

MODULE 2: ORIGINS OF THE SOCIAL CONSTRUCTION OF KNOWLEDGE (RR, AW) This module will trace the development of the idea of the social construction of knowledge and its relation to philosophy and history of science. The development lit a spark, then created a conflagration, and yet still smolders.

MODULE 3: THE POLITICS OF PHILOSOPHICAL KNOWLEDGE (HS, AG) The Politics/Philosophy module has to do with the emergence of theories of "schools of thought" in the context of political change. The two examples to be examined are Plato’s criticism of the Sophists and Sima Qian’s account of the Warring States intellectual landscape, terminated by the consolidation of the Empire.

Instructor(s): R. Richards, J. Goldsmith, A. Winter, H. Saussy, A. Glaeser
Terms Offered: Spring
Prerequisite(s): Undergraduates may enroll with instructor consent.
Equivalent Course(s): CMLT 41803, EALC 50300, HIST 40201, SOCI 40210, MAPS 40301, KNOW 40300
CHSS 42300. Scientific/Technological Change. 100 Units.
No description available.
Equivalent Course(s): HIPS 20300