

# SCIENCE IN HUMAN CULTURE

## Adjunct Major and Minor

The program in Science in Human Culture (SHC) prepares students to confront the impact of science, medicine, and technology on society—and on their own lives. It welcomes pre-medical students who wish to explore the broader social, ethical, and economic world within which modern medicine operates. It welcomes students in the humanities and social sciences who seek to understand the intellectual transformations which attended the rise of science and modern medicine. And it welcomes science and engineering students interested in thinking beyond the problem sets assigned in their specialized courses. A growing number of students are joining the program because it offers them a chance to integrate their understanding of science, medicine, and technology into a liberal arts education, *and* because it offers them the freedom to tailor an **adjunct major** or a **minor** to their own particular interests.

Here are some of the questions which courses in the program address:

- *Why have we come to believe in scientific explanations?*
- *How is scientific knowledge translated into radical new technologies—from the atomic bomb to the genetic testing of fetuses?*
- *How has the rise of medical science and the new economics of medicine changed the relationship between physicians and patients?*
- *What are the philosophical and religious implications of our changing understanding of space, time, and biological evolution?*
- *How has science contributed to (and undermined) our sense of human difference, including racial and sexual difference?*

To address its pressing problems, modern society typically turns to a variety of specialized disciplines. And, as is common at American universities, students at Northwestern are asked to have a “home” major in a particular field. This means they are expected to master a subject in depth and bring a refined methodology to bear on a set of narrowly defined problems. However, disciplinary approaches often fail to provide the wider viewpoint which important problems demand. No single disciplinary approach can treat, for instance, the ethical and social issues in the development of modern medicine, or in the formulation of technology policy. The program in SHC was designed to offer students the chance to take a wider “problem-oriented” perspective before they take on a narrow professional role. By combining their major field with SHC—either as an adjunct major or as a minor—students will be able to explore the topics they care about in an interdisciplinary manner.

To this end, SHC also allows students to choose from a menu of courses and focus on topics of interest to *them*. Hence, SHC is ideal for pre-medical students—including those who are majoring in the biological sciences—who want to understand the broader implications of medical practice, the ethical dilemmas faced by physicians, and the social and economic pressures currently confronting medicine. SHC also welcomes students majoring in the social sciences who are interested in pursuing a career in public health or technology policy, and who understand that these problems cry out for an interdisciplinary thinking. SHC can also be an excellent preparation for students planning to enter graduate school in the history, philosophy, or sociology of science. And finally, SHC can be a valuable tool for engineers or scientists who want to see how their chosen disciplines have shaped—and been shaped by—the wider world.

Above all, the major is meant to appeal to all those students who rebel against the claim that human knowledge can be sharply divided into disciplinary fields, or into the “two cultures”—so neatly symbolized at Northwestern by the north and south ends of campus. After all, one of the main purposes of a liberal arts education is to break down these barriers and to give students a chance to see how a full range of disciplines have treated human problems. Science in Human Culture gives students that opportunity.

## Requirements

**Adjunct Major in SHC, course requirements (10 units):** SHC is an adjunct major; students majoring in SHC must also fulfill the requirements of another major. In consultation with the director of SHC, students develop their own plan of study within SHC, which includes a coherent “theme” and also the following requirements:

- Students must take 3 “core” classes:
  - 2 classes from among Hist 275-1,2, Hist 325, or Hist 376-1,2
  - 1 class from either Philosophy 220 or Philosophy 254
- NOTE: substitutes may be found for these courses
- Students must take 6 additional elective courses drawn from the list below or approved by the director of SHC
- At least 6 out of the 10 total classes must be 300-levels
- The SHC major must show a minimum of 8 courses not double-counted in any other major(s).
- No course used to meet the requirements for SHC can be counted toward the requirements for a minor.

**Minor field in SHC (7 units):** In consultation with the SHC director, students develop their own coherent theme that ties together their choice of seven courses. Students must take at least one 300-level seminar, and may double count no more than two courses.

**Honors (12 units):** Students who wish to pursue honors must enroll in 398-1,2,3 and complete a senior thesis as well as 9 additional classes. Admission into SHC 398-1,2,3 depends on 1) the securing of a faculty advisor interested in working with the student, 2) the completion of a research proposal acceptable to the director of SHC, and 3) a minimum GPA of 3.5 overall and within SHC. Students who complete their thesis with distinction may then be recommended for honors on the vote of the director of SHC, the student’s faculty advisor, and one other designated SHC faculty member. The final awarding of honors is made by WCAS.

**Themes:** Students in both the adjunct major and the minor are expected to have some thematic interest which guides them through their studies in SHC. A theme is not rigidly defined and not every course must fit the theme precisely; but students will need to demonstrate that the majority of their courses form a coherent program. Examples of themes are given below, along with relevant courses. But students are always free to come up with their own theme, in consultation with a faculty advisor.

**Prize:** There is also an annual prize for the best essay written by an undergraduate on some topic in the field of science in human culture.

## Partial List of Courses in Science in Human Culture

Anthropology 315 Introduction to Medical Anthropology  
Anthropology 332 Anthropology of Reproduction  
Anthropology 370 Anthropology in Historical Perspective  
Anthropology 390 Medical Anthropology  
Classics 342 Early European Medicine  
Communications 229 Communication Technology  
Communications 329 Rhetoric of Science and Technology  
Economics 307 Economics of Medical Care  
Economics 323 Economic History of the U.S.  
Gender Studies 250 Gender Issues in Science and Health  
Global Health 301-304 Various Global Health Seminars  
History 275-1,2 History of Science and Medicine  
History 325 American Technology  
History 375-1,2 Technology: History, Society, Economy  
History 376-1 Science and Modern Society: Science and Utopian Thought  
History 376-2 Science and Modern Society: Science and Defining the Human  
History 377 History of American Medicine  
Philosophy 254 Scientific Method in the Natural Sciences  
Philosophy 269 Bioethics  
Philosophy 325 Philosophy of the Mind  
Philosophy 326 Philosophy of Medicine  
Philosophy 352 Philosophy of Mathematics  
Philosophy 354 Philosophy of Natural Science  
Philosophy 355 Scientific Methods in the Social Sciences  
Political Science 204 Politics and Nature  
Political Science 371 Environmental Politics  
Religion 373 Religion and Bioethics  
Sociology 312 Sociology of Environmental Change  
Sociology 319 Sociology of Science  
Sociology 355 Medical Sociology

**Do other classes count?** Northwestern offers many other classes which may count toward SHC. Students should especially keep in mind Junior Year Tutorials and Senior Linkage Seminars, as well as other classes offered on a one-time basis. Students can petition to count these and other classes. Two rules of thumb prevail: 1) the class cannot be a science class that offers a narrow, problem-set approach, and 2) the class must treat science, medicine, or technology in context. Rulings on these petitions are made by the SHC program committee, which also periodically reviews this list of approved courses.

## Courses, grouped by themes

**What is a theme?** To help students tailor their studies to their own interests, we ask them to come up with some plan of study. The list of themes below is *merely suggestive*. Remember that: 1) other themes are possible, 2) the courses used to fulfill any particular theme can vary, 3) many courses *not* listed below may count toward fulfilling the requirements of the major, and 4) almost any theme might include some of the general courses (listed above) in the history, philosophy, or sociology of science and medicine.

**Medicine and Society:** This theme explores the interaction of medical knowledge and practice, medical ethics, and the boundaries between sickness and health. Topics might include: the authority of the physician, the role of the hospital, the social dimensions of racial and gender differences, and changing conceptions of disease and healing. This theme might be of particular interest to those students planning to attend medical school or public health school. It could include such courses as:

- Anthropology 315 Introduction to Medical Anthropology
- Classics 342 Early European Medicine
- Economics 307 Economics of Medical Care
- History 275-1,2 History of Science and Medicine
- History 376-2 Science and Defining the Human
- History 391 The Origins of Modern Medicine
- History 392 Gender and Medicine in History
- Humanities 301 Myths and Metaphors of Medicine
- Philosophy 326 Philosophy of Medicine
- Philosophy 326 Bio-Medical Ethics
- Religion 373 Religion and Bioethics
- Sociology 355 Medical Sociology

**Science and Gender:** Here the focus is on the ways in which science has been used to define the roles of women and men in society. What has been the impact of medicine and technology in the realm of reproduction? Why have scientific definitions of human sexual difference changed so much in the past 200 years? And is it right to say, as some scholars have argued, that men and women bring fundamentally different viewpoints to the study of nature? This theme might appeal to students in a wide variety of disciplines, including Women's Studies. It could include such courses as:

- Anthropology 354 Gender and Anthropology
- Anthropology 370 Anthropology in Historical Perspective
- Gender Studies 250 Gender Issues in Science and Medicine
- History 376-2 Science and Defining the Human
- History 377 American Medicine
- History 392 Gender and Medicine in History
- Philosophy 220 Creationism and Sociobiology
- Psychology 314 Human Sexuality
- Sociology 216 Sociology of Sex Roles
- Sociology 319 Sociology of Science

**Science, Technology, and Society:** This theme examines the social, political, and economic dimensions of technological change. Technology has been touted as the panacea for poverty and inequality; and blasted for devaluing human labor, destroying the environment, and producing weapons of mass destruction. What are the sources and ramifications of technological change? In what ways do the technologies of mass communication shape our political life? This theme might appeal to students interested in technology policy, as well as students from Tech and Medill. Courses might include:

- Communications 229 Communication Technology
- Civil Engineering 206 Environmental Literacy
- Economics 323-1,2 Economic History of the U.S.
- History 275-1,2 Technology: History, Society, Economy
- History 376-1 Science and Utopian Thought
- History 392 Capitalism and the Pursuit of Happiness
- Humanities 302 The Computer Revolution
- Philosophy 367 Philosophical Issues Concerning Technology
- Political Science 204 Politics and Nature
- Political Science 371 Environmental Politics
- Sociology 312 Social Basis of Environmental Change

**Philosophy of Science:** This theme treats both the question of what constitutes the scientific method, and the philosophical implications of scientific theories. It might appeal to philosophy majors, or to those science students who wish to explore the philosophical underpinnings of their discipline. Courses could include:

- History 350-3 Intellectual History in the Nineteenth Century
- History 350-4 Intellectual History in the Twentieth Century
- History 376-1 Science and Utopian Thought
- History 376-2 Science and Defining the Human
- Philosophy 254 Scientific Method in the Natural Sciences
- Philosophy 325 Philosophy of the Mind
- Philosophy 354-1 Philosophy of Space, Time, Motion
- Philosophy 354-2 Philosophy of Quantum Mechanics
- Philosophy 355 Scientific Methods in the Social Sciences
- Sociology 319 Sociology of Science

**Science, Religion, and Values:** In recent times, commentators have emphasized the conflict between science and religion, whereas earlier thinkers often saw the two as complementary or interdependent forms of understanding. This theme addresses the complex relationship between scientific knowledge and religious belief. It might appeal to students curious about the interplay of faith and knowledge. Courses could include:

- History 350-3 Intellectual History of Europe: Nineteenth Century
- History 350-4 Intellectual History of Europe: Twentieth Century
- History 376-1 Science and Modern Society: Science and Utopian Thought
- Religion 373 Religion and Bioethics

## Faculty (partial list)

**Ken Alder**, History, Director of SHC, [k-alder@northwestern.edu](mailto:k-alder@northwestern.edu): Alder examines the history of science and technology in America and Europe, with particular emphasis on measurement, engineering, and the law.

**Pablo Boczkowski**, Communication Studies, [pjb9@northwestern.edu](mailto:pjb9@northwestern.edu): Boczkowski studies the way that the traditional print media is adapting to the new world of electronic communications.

**Francesca Bordogna**, History, [f-bordogna@northwestern.edu](mailto:f-bordogna@northwestern.edu): Bordogna studies the history of the human and medical sciences in the late-nineteenth and early-twentieth centuries. She is currently working on the philosophy and psychology William James.

**Charles Camic**, Sociology, [c-camic@northwestern.edu](mailto:c-camic@northwestern.edu): Camic is sociologist interested in theories of knowledge, particularly in the social sciences.

**Scott Curtis**, Radio, TV, film, [scurtis@northwestern.edu](mailto:scurtis@northwestern.edu): Curtis is interested in the way that psychologists used film to capture and portray inner life. His particular focus is on German film.

**Jen Light**, Communication Studies, [light@northwestern.edu](mailto:light@northwestern.edu): Light focuses on American technology during the period in the Cold War.

**Larry Lipking**, English, [lipking@northwestern.edu](mailto:lipking@northwestern.edu): Lipking is currently working on a study of the imagination in science during the Scientific Revolution.

**Helmut Müller-Sievers**, German, Comp. Lit., [hms@northwestern.edu](mailto:hms@northwestern.edu): Müller-Sievers studies the relationship between the biological sciences and intellectual and cultural change, especially through the reading of literature and philosophy.

**Mark Sheldon**, Philosophy, [sheldon@northwestern.edu](mailto:sheldon@northwestern.edu): Sheldon works on medical ethics and the philosophy of medicine.

**Laura Stark**, Sociology, [laura-stark@northwestern.edu](mailto:laura-stark@northwestern.edu): Stark works on the origins of Institutional Review Boards, those mechanisms by which the ethics of human experimentation is currently vetted.

**Kearsley Stewart**, Anthropology, [kstewart@northwestern.edu](mailto:kstewart@northwestern.edu): Stewart works on the comparative approaches to international health, particularly on AIDS in Africa.

**Claudia Swan**, Art History, [c-swan@northwestern.edu](mailto:c-swan@northwestern.edu): Swan studies the relations of science and art during the Golden Age of Dutch painting in the seventeenth century.

## More Information

For assistance or more information, speak with the director, Ken Alder, [k-alder@northwestern.edu](mailto:k-alder@northwestern.edu). You can also check out the current listing of courses on the SHC webpage at: <http://www.shc.northwestern.edu/>