

SCIENCE AND TECHNOLOGY STUDIES MAJOR

MAJOR DESCRIPTION

The College of Science and Technology Studies offers a dynamic interdisciplinary major in Science and Technology Studies (STS) that enables students to combine in-depth study in a single science with a broad exploration of the social, cultural, historical, ethical, and philosophical issues related to the practice of the sciences, technology, and medicine. The major consists of three components: STS courses in the history, philosophy, and social studies of the sciences, technology, and medicine; at least two years of coursework in a single scientific discipline; and an area of concentration to provide depth in a related discipline.

The STS major helps students understand the richness and complexities of scientific practice and the cultural and political significance of science, technology, and medicine. The major is designed for students who are curious about the broad historical contexts of scientific research, the cultural dynamics of technologies, and the social structures involved in medicine and health care.

Students can pursue a stand-alone major in Science and Technology Studies, or a joint major that combines STS with a major in one of the following sciences: Astronomy, Physics, Mathematics, Biology, Chemistry, Computer Science, Earth & Environmental Sciences, Molecular Biology & Biochemistry, Neuroscience, Physics, and Psychology. Single STS majors must take on an area of concentration in either Anthropology, Feminist, Gender, and Sexuality Studies, History, Philosophy, Religion, or Sociology. Prospective majors are encouraged to begin their primary science and STS courses in the first and second year.

The STS major is well suited for students interested in a variety of professional and academic pursuits, since it encourages students to develop analytical thinking skills, the ability to communicate complex technical issues to diverse audiences, and reasoning skills to grapple with the social and ethical contexts of science, technology, and medicine. STS majors are equipped to pursue a range of advanced study and career opportunities in such fields as science and technology studies, medicine, nursing, public health, bioethics, science policy, science communications and education, and sustainability and environmental research.

ADMISSION TO THE MAJOR

There are no prerequisites for admission to the STS major. Students interested in pursuing the major are encouraged to begin taking science courses in their first and sophomore years. Most students take their first STS course as a sophomore. The 200-level core courses in the history of science or sociocultural studies of science are recommended as first courses in the major.

In the second semester of their sophomore year, students who wish to declare the STS major must identify the fields in which they plan to complete their science requirement and their area of concentration. Students who seek to add the major after their sophomore year will only be admitted after review to ensure that they are in a good position to complete the major.

To declare the major, students must do three things:

- 1) indicate their intended status as a single- or joint-major;

- 2) list their science and area of concentration (if a single major), and;

- 3) submit a brief written statement of their goals in the major, for advising purposes, and for later evaluation of how well those goals were met.

MAJOR REQUIREMENTS

The STS major has three components: (A) science courses, (B) STS courses, and (C) an area of concentration. Each STS major is assigned an advisor who helps the student plan their course work across these three areas.

(A) SCIENCE COURSES

All majors are required to take a minimum of four 1-credit major track courses in a single science. The eleven (11) science majors that we have traditionally counted towards the STS major are: Astronomy, Physics, Mathematics, Biology, Chemistry, Computer Science, Earth & Environmental Sciences, Molecular Biology & Biochemistry, Neuroscience, Physics, and Psychology. The laboratory courses associated with introductory science courses do not count toward our four-course requirement for the STS major.

For most students, these science courses must be completed in a single department, to enable them to get beyond the introductory level. For example, one cannot satisfy this requirement by taking one year of Chemistry and one year of Biology, but must take 4 courses in EITHER one. There are three kinds of exceptions to this policy:

1. Students who do their science in Biology, MB&B, Neuroscience, or Psychology may take courses under more than one departmental designation, so long as all four of the courses that they count toward the STS major are cross-listed in one of those departments.
2. There are some variations permitted for students who do their science courses in Astronomy or E&ES. Students who do their science courses in Astronomy or Physics may count PHYS113, PHYS116, along with ASTR155 and either one upper-level ASTR course or one higher-level Physics credit toward the requirement. Students who do their science in E&ES may count a year of Chemistry, E&ES197 or E&ES199, and a 200-level E&ES course OR a year of Biology, E&ES197 or E&ES199, and an upper-level Biology course in Ecology or Conservation Biology.
3. Students who do their science courses in Computer Science should take COMP211 and COMP212, and two other upper-level COMP courses (but MATH228 can also count for one of these upper-level courses).

(B) STS COURSES

All students are required to take a minimum of six courses (6 credits) listed at the 200- or 300-level in the College.

Among the six required courses for the major that must be listed or cross-listed with an STS number, three are "core courses" in the three core areas of STS (history, philosophy, and sociocultural studies), and three are electives that can be fulfilled by any course listed or cross-listed in STS at the 200 or 300 level, so long as the student takes at least one elective at the 300 level.

What are the general differences between a 200 and 300-level course in STS at Wesleyan? Generally speaking, a 200-level course is envisioned as a more introductory course with a lecture-format; a 300-level course envisioned as a more advanced course with a discussion-format. We also offer STS courses in experimental and laboratory formats, from time to time. Variations exist in professors' allegiances to these general distinctions. Students are encouraged

to read the course syllabus for information about the relevant expectations for course format and structure.

What is a core versus elective course in STS? The core courses in the history of science, philosophy of science, or sociocultural studies of science serve specific purposes for the major by providing important theoretical background in interdisciplinary science and technology studies and can only be satisfied by specific courses that the chair of the College has approved for these purposes. Not all courses cross listed between STS and History, Philosophy, Sociology or Anthropology will fulfill these core requirements. Every STS-numbered course that is designated as core may also be treated as an elective, but every elective STS course may not be designated as a core course. An updated list of the courses that satisfy the core courses and their rationale can be found below.

HISTORY OF SCIENCE

Courses that meet this requirement aim to provide students with a broader historical understanding of the sciences, medicine, and technology. They should attend specifically to questions of how to think historically about the sciences, medicine, and technologies, and/or and have some breadth to their thematic and/or temporal orientation. Many of the courses that meet these requirements are more specifically focused on one or more scientific fields, and students are encouraged but not required to enroll in a history of science course that coordinates with their own scientific background.

Code	Title	Hours
STS221	History of Ecology	1
STS253	Science and/as Literature in Early Modern England	1
STS254	Science in Western Culture	1
STS255	Nature/Culture	1
STS259	Discovering the Person	1
STS285	China as Scientific Powerhouse	1
STS287	Science in Modernity and After: 20th-Century Science and Technology	1
STS357	AI, Algorithms, & Power	1

PHILOSOPHY OF SCIENCE

Courses that meet this requirement are primarily focused upon the epistemic and conceptual norms that govern scientific inquiry and the ways these normative issues are taken up in scientific practice. These courses also often provide conceptual links between students' science courses and their work in other areas of the program. Some of these courses are focused on normative concerns that are distinctive to particular scientific disciplines, such as psychology, the life sciences, or medicine and other health sciences.

Code	Title	Hours
STS202	Philosophy of Science	1
STS214	Humans, Animals, and Nature	1
STS220	Human Nature	1
STS286	Philosophy of Mind *	1

* Open to STS students whose science courses are in Psychology

SOCIOCULTURAL STUDIES OF SCIENCE

Courses that meet this requirement both address a wide range of scientific, medical, and or technological practices as social and cultural phenomenon and provide a theoretical background from interdisciplinary science studies for how to investigate such practices. These courses specify the ways that science,

medicine, and technologies belong to and mutually interact with other social institutions or cultural practices.

Code	Title	Hours
STS201	Critical Global Health	1
STS205	Sciences as Social and Cultural Practices	1
STS208	Technologies of Time	1
STS210	Feminist Technoscience: Making Bodies, Bits, and Bombs	1
STS250	Sociology of Knowledge	1
STS256	Race and Medicine in America	1
STS262	Cultural Studies of Health	1
STS265	Anthropology of Science	1

A second approved course in the History of Science (see above list) will also satisfy this requirement; and vice versa.

(C) AREA OF CONCENTRATION COURSES

Option 1: Students may fulfill their area of concentration in a science by completing a major in that science (the first four courses satisfy their science requirement; the remainder count as their area of concentration).

Option 2: Students may fulfill their area of concentration by taking three courses in any of the following areas as specified below:

ANTHROPOLOGY: EITHER ANTH101 OR one course the from "Crafting Ethnography" concentration within the department; two relevant upper-level electives, at least one of which must be at the 300-level. In planning this concentration with their advisor, students should note that ANTH101 can be a pre-requisite for certain upper-level courses and plan accordingly.

FEMINIST, GENDER, AND SEXUALITY STUDIES: FGSS209 and two other courses approved by the advisor. One FGSS Gateway course may normally be included in the concentration.

HISTORY: Students are encouraged to work with their advisor to devise a coherent concentration in History. The three courses for the concentration must include at least one Seminar (either a Sophomore Seminar, or an Advanced Seminar), and should normally be taken within a single field (e.g., AALA, United States, Europe, Intellectual, Gender, Religion, etc.). History concentrators must also include a second core course in the History of Science among their six required STS courses.

PHILOSOPHY (metaphysics and epistemology): PHIL202 (Philosophical Classics II), one intermediate level "Mind and Reality" course, and a third course approved by the advisor. 100-level courses do not count toward this concentration.

PHILOSOPHY (ethics and political philosophy): Three courses in ethics or political philosophy (numbered 211-230, 266-285 or 331-360). With permission of your advisor, a course in political theory in the Government Department may be counted toward this concentration.

RELIGION: Three courses, one each drawn from the Religion Department's classification of courses as addressing "Method and Theory," "Thematic Approaches," and "Historical Traditions." Other appropriate courses may be substituted with advisor's permission. REL151 can count toward the concentration as a "Method and Theory" course.

SOCIOLOGY: SOC151 and two additional courses approved by the advisor. Many students find it helpful to take some courses cross-listed with STS for their sociology concentration, but must then take other STS courses as electives for the Program. In planning this concentration with their advisor, students should note that SOC151 can be a pre-requisite for certain upper-level courses and is not offered to juniors or seniors.

ALTERNATIVES: In consultation with the Chair and their major advisors, STS majors may pursue STS-oriented concentrations in a variety of area studies at Wesleyan: East Asian Studies, Indigenous Studies, African American Studies, African Studies, and Latin American Studies. These alternative areas of concentration should be thoughtfully designed by students and highly scrutinized by advisors and the College Chair.

STUDENT LEARNING GOALS

The STS Faculty engages in ongoing review of the effectiveness of the major in enabling students to meet the Learning Goals intended for all students, and the student's own individual goals within the major. The STS Faculty have approved the following list of Learning Goals for all students undertaking the major in STS: the four Learning Goals are scientific competence, core competence in science studies, disciplinary depth, and scientific contextualization. Because each student's course of study is individualized, we rely upon student self-assessment as a crucial input to our review.

- **Scientific competence:** Competence beyond the major-track introductory level in a scientific discipline, indicated by students' performance in appropriate courses in that science;
- **Core competence in science studies:** Improved understanding of the sciences and/or medicine as historically developing, socially and culturally situated practices of inquiry and conceptual understanding; that understanding should have both multidisciplinary breadth and greater depth within a particular disciplinary area of concentration.
- **Disciplinary depth:** Those students whose area of concentration is in a discipline that incorporates the sciences and medicine as objects of inquiry should improve their understanding of how that discipline conceives and approaches the sciences and/or medicine and how its approach connects to other ways of understanding the sciences and medicine; those students whose area of concentration is fulfilled by a second major in a scientific discipline should improve their understanding of how practices and achievements of that science are historically, culturally, and philosophically situated and how their scientific understanding and their core competence in science studies can be mutually informative.
- **Scientific contextualization:** Improved skills for engaging their scientific understanding in relevant ways with specific issues or concerns of broader social, cultural, political, and/or philosophical significance and for acquiring and assessing relevant technical background for such issues that go beyond their prior scientific training.

STUDY ABROAD

Many STS majors participate in study abroad for a semester as a junior. Students may count seek to transfer a course taken while abroad toward their STS major. Students should first consult with their STS major advisor and the Study Abroad Office about their planned course of study while abroad. Follow the submission process for the Study Abroad Office, which will route your request to transfer a course to the Chair of STS, who will consider all requests to transfer credit through the electronic portal that is maintained by the Study Abroad Office.

The Chair will consider the course content, instructor, and university context to determine if the proposed course is clearly equivalent in level and field to an STS course class we would offer at Wesleyan. For a course to count towards your STS major, it must contain course content (readings, lectures, media) that are germane to STS and an instructor whose training is broadly aligned with STS or its trans-disciplines. Many institutions do not offer STS courses; some do. Generally, we

encourage STS majors to seek credit for their areas of concentration because those courses are widely available in universities around the world.

TRANSFER CREDIT

Courses may be transferred from other institutions to replace one of the STS requirements, but we review these requests very stringently, and we only accept courses clearly equivalent in level and field to courses we would accept at Wesleyan. Students should consult with their advisor and the Chair and complete the Permission to Transfer Credit Form.

HONORS

Candidates for Honors in STS must submit a thesis by the University's deadline, and must have maintained an average grade of 88.3 (B+) or better in Wesleyan courses that are cross-listed with the STS to earn Honors or High Honors (as evaluated by faculty). Theses submitted as a candidate for departmental Honors in STS must comply with all the regulations of the University Honors Program (<https://www.wesleyan.edu/registrar/honors/>). Truly exceptional theses may be nominated for University Honors.

CAPSTONE EXPERIENCE

The STS major offers two options for the capstone experience:

- (1) All 300-level seminars in the major may be designated as a capstone experience. These courses, on a wide range of topics, each with a term paper or other independent research component, provide many opportunities for what can become capstone projects, and students are encouraged to choose their seminar courses and their research topics in those courses with this possibility in mind.
- (2) Students may pursue Honors in STS by completing a two-semester senior honors thesis. Majors interested in undertaking a thesis will be expected to submit a thesis prospectus in the spring semester of their junior year. Candidates for Honors in STS must submit a thesis by the University's April deadline, and must have maintained an average grade of 88.3 (B+) or better in Wesleyan courses that are cross-listed with the College of STS to earn Honors or High Honors. Theses submitted as a candidate for departmental Honors in STS must comply with all the regulations of the University Honors Program.