
SCIENCE, TECHNOLOGY, AND SOCIETY

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About the Program

Science and technology are not isolated activities: they are inextricably linked to every other aspect of human experience. Science and technology have important connections to literature, philosophy, religion, art, economics, and social and political history. Scientific evidence and argument are part of continuing lively debates on issues at every level of generality: social policy, the utilization of natural resources, the allocation of health care, the origin and evolution of life, the place of humankind in the natural order, and the nature of the universe.

Science, Technology, and Society courses explore the connections between the sciences and other parts of the human endeavor. Students in the program develop an understanding of 1) how the broader culture influences the development of science and how science influences different societies and cultures, and 2) the interplay between science and economics, politics, religion, and values in contemporary decision making. Many Science, Technology, and Society courses are cross-disciplinary in nature. Faculty from more than a dozen different disciplines within and outside of the sciences participate in Science, Technology, and Society.

Majors in the Program in Science, Technology, and Society develop a strong understanding of the practice of science and technology, which provides excellent preparation for careers in medicine, education, law, public policy, and university research and teaching. Minors, especially those majoring in a science, and students taking individual courses broaden their understanding of this important area of human endeavor.

General Requirements for the Major or Minor

General university degree requirements stipulate that 1) at least four units of the major or three units of the minor be taken in residence at Puget Sound; 2) students earn a GPA of 2.0 in courses taken for the major or the minor; and 3) all courses taken for a major or minor must be taken for graded credit. Any exceptions to these stipulations are indicated in the major and minor degree requirements listed below.

Requirements for the Major

The Bachelor of Arts degree in Science, Technology, and Society is awarded on the basis of a course of study agreed upon by the student and a committee of faculty members. During the sophomore year or by the first semester of the junior year, a student who intends to major in Science, Technology, and Society should meet with the director of the Program to select a faculty member as an advisor. The student and advisor form a committee that includes the advisor and others members from the Advisory Committee for the Program in Science, Technology, and Society. The committee may include faculty outside the program if the student's interests overlap with that faculty member's discipline. The student works with the committee to select a coherent set of courses that advance the student's educational goals. The committee usually seeks a balance between breadth of coverage and focus in the student's particular area of interest. The committee will also ensure that there is a sufficient concentration in STS courses (in distinction from courses in cognate disciplines that are accepted as electives). The contract goes into effect after it is signed by the student, the committee members, and the

director of the Program and is filed in the Office of the Registrar. The contract is reviewed periodically and justified modifications are permitted.

Requirements for the Contract in Science, Technology, and Society

Every contract should consist of a minimum of 12 units distributed as follows:

1. **Introductory Surveys:** 2 units.
STS 201 Introduction to Science, Technology, and Society I: Antiquity to 1700; and
STS 202 Introduction to Science, Technology, and Society II: Since 1800. Preferably taken in the first or second year.
2. **Methods course:** 1 unit.
STS 350 The Interdisciplinary Study of Science and Technology. Preferably taken in the fall semester of junior year.
3. **Philosophy and Science:** 1 unit.
One course chosen from PHIL 332 Philosophy of Science; or PHIL 220 Seventeenth- and Eighteenth-Century Philosophy. (A different course in philosophy can be approved by the STS director.) Preferably taken in the spring semester of junior year.
4. **Electives:** 5 units.
See the list of electives below. Students must take at least one course each from categories one, two, and three. The remaining two courses can be taken from any of the three categories.
5. **Ancillary Courses:** 2 units.
Two courses in the natural sciences. Preferably in the same natural science. Preferably taken in the first or second year.
6. **Capstone course:** 1 unit.
Taken in fall or spring semester of the senior year. STS 480 Senior Research Seminar in STS.

Notes

1. Students must maintain a grade point average of at least 2.00 in all contract courses and a grade point average of at least 2.00 in the upper-division (300-400 level) courses in the contract.
2. Students must complete at least four units of the required upper-division (300-400 level) contract courses at Puget Sound. One of these 4 units may be a course taken as part of a study-abroad program, subject to approval in advance by the student's contract committee.
3. Students must gain approval for the contract before completing upper-division coursework. Courses completed before the contract is approved are subject to review by the committee prior to inclusion in the contract.

Each year, the STS program will name one graduating major a Mott Greene Research Scholar for a distinguished senior research project. All graduating majors are eligible to be considered for Honors in the Major.

Requirements for the Minor

A minor consists of 5 units distributed as follows.

1. **Introductory Survey:** 1 unit.
One course chosen from:
STS 201 Introduction to Science, Technology, and Society I: Antiquity to 1700; or STS 202 Introduction to Science, Technology, and Society II: Since 1800
2. **Electives:** 3 units.
See the list of electives below. Students must take at least one class

from each of the three categories.

3. **Methods course:** 1 unit.
 STS 350 The Interdisciplinary Study of Science and Technology

Electives

1. Studies of Particular Scientific Disciplines
 ECON 221 History of Economic Thought
 PHYS 299 History and Practice of Ancient Astronomy
 PSYC 325 History and Systems of Psychology
 STS 100 Apes, Angels & Darwin
 STS 301 Technology and Culture
 STS 314 Cosmological Thought
 STS 330 Evolution and Society Since Darwin
 STS 344 Ecological Knowledge in Historical Perspective
 STS 345 Science and War in the Modern World
 STS 347 Better Living Through Chemistry
 STS 348 Strange Realities: Physics in the Twentieth Century
2. Special Topics in Science, Technology, and Society
 CONN 354 Hormones, Sex, Society and Self
 CONN 357 Exploring Animal Minds
 CONN 410 Science and Economics of Climate Change
 CLSC 339 Sci-Fi, Fantasy, & the Classics
 ECON 365 Economics and Philosophy
 ENGL 348 Illness and Narrative
 HIST 317 European Intellectual History, 19th and 20th Centuries
 PHIL 220 Seventeenth- and Eighteenth-Century Philosophy
 PHIL 330 Epistemology: The Theory of Knowledge
 PHIL 332 Philosophy of Science
 PHIL 340 Philosophy of Cognitive Science
 SOAN 360 Sociology of Health and Medicine
 SOAN 365 Global Health
 STS 310 I, Robot - Humans and Machines in the 20th and 21st Centuries
 STS 318 Science and Gender
 STS 325 Highway to History: A Study of the Automobile Industry
 STS 340 Finding Order in Nature
 STS 352 Memory in a Social Context
 STS 354 Murder and Mayhem under the Microscope
 STS 361 Mars Exploration
 STS 366 History of Medicine
3. Policy and Values in Science and Technology
 BUS 478 Environmental Law
 CONN 320 Health and Medicine
 CONN 393 Cognitive Foundations of Morality and Religion
 ENVR 335 Thinking about Biodiversity
 HIST 364 American Environmental History
 PHIL 105 Neuroethics and Human Enhancement
 PHIL 285 Environmental Ethics
 PHIL 292/BIOE 292 Basics of Bioethics
 REL 292/BIOE 292 Basics of Bioethics
 SOAN 352 Work, Culture, and Globalization
 STS 302 Cancer and Society
 STS 324 Science and Race: A History
 STS 333 Evolution and Ethics
 STS 370 Science and Religion: Historical Perspectives
 STS 375 Science and Politics
 STS 378 Weapons of Mass Destruction

Course Offerings

Unless otherwise specified, each course carries 1 unit of credit and is offered at least once each academic year. Please see "Frequency of Course Offerings" on page 18.

Seminars in Scholarly Inquiry. See *Seminars in Scholarly Inquiry in the Core Curriculum section of this Bulletin for course descriptions (page 18).*

SSI2 149 Creationism vs. Evolution in the U.S.

SSI1/SSI2 153 Scientific Controversies

SSI1/SSI2 159 Evolution for All

SSI1 181 Science and Theater

Other courses offered by Science, Technology & Society faculty. See *Connections in the Core Curriculum section of this Bulletin for course descriptions.*

STS 301 Technology and Culture

Satisfies the Connections core requirement.

STS 302 Cancer and Society

Satisfies the Connections core requirement.

STS 314 Cosmological Thought

Satisfies the Connections core requirement.

STS 318 The Science of Gender

Satisfies the Connections core requirement.

STS 330 Evolution and Society Since Darwin

Satisfies the Connections core requirement.

STS 333 Evolution and Ethics

Satisfies the Connections core requirement.

STS 340 Finding Order in Nature

Satisfies the Connections core requirement.

STS 345 Science and War in the Modern World

Satisfies the Connections core requirement.

STS 347 Better Living Through Chemistry

Satisfies the Connections core requirement.

STS 348 Strange Realities: Physics in the 20th Century

Satisfies the Connections core requirement.

STS 352 Memory in a Social Context

Satisfies the Connections core requirement.

STS 354 Murder and Mayhem under the Microscope

Satisfies the Connections core requirement.

STS 361 Mars Exploration

Satisfies the Connections core requirement.

STS 370 Science and Religion: Historical Perspectives

Satisfies the Connections core requirement.

STS 375 Science and Politics

Satisfies the Connections core requirement.

Science, Technology & Society (STS)

100 Apes, Angels, and Darwin Benjamin Disraeli described the question placed before society by Charles Darwin's work as follows: "Is man an ape or an angel?" This course examines the development of evolutionary thinking during the nineteenth century and the resulting debates over the "Descent of Man." It explores the relationship between Darwin's theory of evolution and the social, political and religious history of Britain and the British Empire in the nineteenth century. The course serves as an introduction to analyzing the interactions between science and society, with particular attention to how Darwin's theory intersected with debates over God, Science, Empire, Ethics, Race, Gender, Economics, and Politics. *Satisfies the Humanistic Approaches core requirement. Offered every other year.*

201 Science, Technology, and Society I: Antiquity to 1700 This course focuses on the history of science, technology, and society from Antiquity to 1700 C.E. It emphasizes both the theoretical understanding of nature and the practical mastery of the technologies of settled existence. Topics include: astronomy in ancient Egypt, Mesopotamia and Greece; ancient Greek and early Chinese medicine; Islamic science in the Middle Ages; Renaissance anatomy, physiology, and natural history; and the Scientific Revolution of the seventeenth century. Issues addressed include: the role of cultural institutions in the production and diffusion of scientific ideas; the transmission of science across linguistic and cultural boundaries; and the interaction of science with art, religion, philosophy and political life. There are no prerequisites, but the course assumes a working knowledge of biology, chemistry, and geometry at the high school level. *Satisfies the Humanistic Approaches core requirement. Offered every other year.*

202 Science, Technology, and Society II: Since 1800 Students in this course analyze the development of the physical and biological sciences throughout the nineteenth and twentieth centuries, paying special attention to the reciprocal relationship between scientific developments and their social influences. Beginning with the social and intellectual upheaval of the French Revolution and working through the first half of the twentieth century, this course surveys natural scientists' landmark discoveries and interpretations and examines the intellectual, social, natural, and personal influences that helped shape their work. Subjects of the course include Newtonianism, creationism, natural theology, evolution, the origin and demise of electromagnetic worldview, Einstein and the development of the theories of relativity, scientific institutions and methodologies, quantum mechanics, the atomic theory, molecular biology, big science, and modern genetics. STS 202 is meant as a complement to STS 201, but the prior course, while recommended, is not a prerequisite. *Satisfies the Humanistic Approaches core requirement. Offered spring semester.*

299 Science, Technology, and Society in the News 0.25 activity units. This course is an activity credit where students write for and participate in STS in the News, a student-run STS blog. Students become familiar with the approach and style of academic blog writing, producing essays with novel content that both engage with current events related to science and technology and synthesize ideas from STS scholarship. Weekly meetings are required to select topics, discuss STS, promote the development of writing skills, and manage STS in the News. *Prerequisite: At least one STS course. May be repeated for credit. Pass/Fail Required.*

300 STEM, Society, and Justice 0.25 units. This is a 'Special Topics' course designed by students with the support of faculty to promote project-based learning for topics that do not fit within the rubric of an independent study or an existing full-unit course. The course broadly addresses themes related to STEM and social justice in a range of ways. Examples include designing a syllabus and seminar series on diversity in STEM or composing supplementary material for science courses on issues that relate to society and justice. *May be repeated for credit. Pass/Fail Required.*

301 Technology and Culture See Connections in the Core Curriculum section of this *Bulletin* for course description.

302 Cancer and Society See Connections in the Core Curriculum section of this *Bulletin* for course description.

310 I, Robot: Humans and Machines in the 20th and 21st Centuries In the mid 20th century, science-fiction writer Isaac Asimov envisioned

the world in 2029 filled with complex and autonomous machines, capable of caring for children and engaging in interplanetary travel, mining, and political and military action. In contrast to this fictional world, how and why did the real inventors of computers, cybernetics, and robotic machinery create these technologies? What future(s) did they imagine for their inventions, and how did they understand the relationship between humans and machines? Did they envision an Asimovian future or something completely different? Did these technologies challenge them to re-think what it means to be human? Why or why not? In this course, students investigate the history of these fields to develop a better understanding of technology, society, and values in the 20th and 21st centuries. *Offered every other year.*

314 Cosmological Thought See Connections in the Core Curriculum section of this *Bulletin* for course description.

318 The Science of Gender See Connections in the Core Curriculum section of this *Bulletin* for course description.

324 Science and Race: A History This course examines the history of ideas about race in biology since the eighteenth century. Students study how and why knowledge about race has been constructed and used in particular contexts, and, in doing so, examine the complex relationship between science and society. *Satisfies the Knowledge, Identity, Power graduation requirement.*

325 Highway to History: A Study of the Automobile Industry Although inventors in different countries and time periods contributed to the invention of the automobile, the car remains a symbol of American engineering and technological prowess, personal independence, adulthood, and social status. This course examines the intellectual and social history of the automobile in the United States and abroad. By analyzing cars as products of a large technological system, including, for example, tire manufacture, oil and gas production, road construction, gas stations, and a variety of other ancillary industries, this class investigates the social, economic, environmental, and cultural impacts of the automobile. *Offered every other year.*

330 Evolution and Society Since Darwin See Connections in the Core Curriculum section of this *Bulletin* for course description.

333 Evolution and Ethics See Connections in the Core Curriculum section of this *Bulletin* for course description.

340 Finding Order in Nature See Connections in the Core Curriculum section of this *Bulletin* for course description.

344 Ecological Knowledge in Historical Perspective This course examines the history of both scientific ecology and recent movements to interrogate, question, and revise the West's understanding of nature, including Traditional Ecological Knowledge (TEK). In doing so the course places both defenses and critiques of Western science in historical context, with particular emphasis on potential implications for environmental policy. Students examine how the rise of conservation and environmentalism, responses to imperialism and colonialism, and debates over the role of activism and advocacy in science have influenced ecologists' work, identity, and organizations. In doing so students study the interaction between science and society, while considering the important insights a historical understanding of science can bring to understanding modern concerns and controversies. *Satisfies the Humanistic Approaches core requirement. Satisfies the Knowledge, Identity, Power graduation requirement. Offered every other year.*

345 Science and War in the Modern World See Connections in the Core Curriculum section of this *Bulletin* for course description.

347 Better Living Through Chemistry See Connections in the Core Curriculum section of this *Bulletin* for course description.

348 Strange Realities: Physics in the 20th Century See Connections in the Core Curriculum section of this *Bulletin* for course description.

350 Interdisciplinary Study of Science and Technology This seminar is required of all majors and minors in STS, but is also open to all students interested in the relationships between science, technology and society. Students study various approaches developed by historians, sociologists and philosophers of science and technology. The methods and approaches learned in this course provide a foundation for the STS Senior Seminar, in which students complete a substantial research project on a topic of their choice. For non-majors, the course offers an overview of how and why scholars have studied science and technology in different ways, and also provides an opportunity to practice thinking, talking and writing about science beyond traditional disciplinary boundaries. *Prerequisite: STS 201 or STS 202 or permission of STS Director. Cannot be audited. Offered fall semester.*

352 Memory in a Social Context See Connections in the Core Curriculum section of this *Bulletin* for course description.

354 Murder and Mayhem under the Microscope See Connections in the Core Curriculum section of this *Bulletin* for course description.

361 Mars Exploration See Connections in the Core Curriculum section of this *Bulletin* for course description.

366 History of Medicine This course surveys the history of medicine from ancient times to the present, guided by the following questions. How have people in different times and contexts made sense of health, disease, and healing? How have changing conceptions of nature and the scientific study of the human body influenced medicine? What have been the social, political, and institutional contexts in which medicine has been done and developed? How has the role of the doctor and patient relationship changed, and how have conceptions of a 'good doctor' and 'good medicine' changed? How have the problems of access to and distribution of medical care been approached? Examining each of these questions in historical context will, in turn, provide a foundation for contemplating modern issues in medical research and practice, as well as medicine's place in modern society. *Offered every other year.*

370 Science and Religion: Historical Perspectives See Connections in the Core Curriculum section of this *Bulletin* for course description.

375 Science and Politics See Connections in the Core Curriculum section of this *Bulletin* for course description.

378 Weapons of Mass Destruction During World War I, teams of chemists, engineers, and military leaders in Germany, France, the United States and elsewhere worked to prepare chemical weapons that could be deployed on battlefields. The field use of chemical weapons proved to be difficult and unreliable so they were little used as combat weapons in World War II, though related chemicals were key tools of the Nazi holocaust. Chemical weapons have also been deployed often in smaller conflicts, including very recently. If the first world war was the chemists' war, the second was the physicists' and led to the development and use of nuclear weapons. Fortunately, there has not yet been a biologists' war, although germ warfare has been an active area of research by national governments. In the period after World War II, international efforts at controlling weapons of mass destruction, preventing

their proliferation to other nations, and protecting stockpiles from falling into unauthorized hands has proved to be difficult and complicated. In this course students become familiar with the history of weapons of mass destruction and analyze humanitarian, political, and geopolitical arguments about their development and possible use. Students also learn to evaluate strategies for their control. *Offered every other year.*

400 Teaching STEM, Society and Justice 0.25 units. In this course students learn about "big issues" confronting the relationship between STEM fields, society, and justice today, while learning about curriculum and lesson plan design. They then design a complete teaching module on an issue of their choice concerning fairness and justice connected with STEM disciplines (to be implemented by the STS Program, in consultation with the students, in the Fall). In doing so students learn about, reflect upon, and implement strategies for communicating themes, problems, and issues concerning the place of STEM in society and the influence of society on STEM knowledge, practices and fields. *Prerequisite: STS major of junior or senior standing. Pass/Fail Required.*

480 Senior Research Seminar in STS In this course students will carry out original research and compose an extensive, original research paper on an approved topic, building on the approaches examined in STS 350. This will consist of the creation of an extensive annotated bibliography and research paper on an STS topic of each student's choice. *Prerequisite: STS 350 or permission of the STS Director. Cannot be audited. Offered every year.*

491 Senior Thesis *Prerequisite: STS 480 and permission of instructor. Cannot be audited. Cannot be taken Credit/No Credit.*

492 Senior Thesis Seminar Students in this course build on research completed in STS 480 Senior Seminar to complete an extensive research project on an STS topic. Note that achievement of a B+ or higher in STS 480 is required to register for STS 492. *Prerequisite: STS 480 and permission of instructor. Cannot be taken Credit/No Credit.*

495 Independent Study Variable credit up to 1.00 unit. Research under the close supervision of a faculty member on a topic agreed upon. Application and proposal to be submitted to the department chair and faculty research advisor. Recommended for majors prior to the senior research semester. *May be repeated for credit up to 4.00 units. Cannot be audited. Cannot be taken Credit/No Credit.*

498 Internship Seminar Variable credit up to 1.00 unit. This scheduled weekly interdisciplinary seminar provides the context to reflect on concrete experiences at an off-campus internship site and to link these experiences to academic study relating to the political, psychological, social, economic and intellectual forces that shape our views on work and its meaning. The aim is to integrate study in the liberal arts with issues and themes surrounding the pursuit of a creative, productive, and satisfying professional life. Students receive 1.0 unit of academic credit for the academic work that augments their concurrent internship fieldwork. This course is not applicable to the Upper-Division Graduation Requirement. Only 1.0 unit may be assigned to an individual internship and no more than 2.0 units of internship credit, or internship credit in combination with co-operative education credit, may be applied to an undergraduate degree. *Prerequisite: Junior or senior standing, 2.5 GPA, ability to complete 120 hours at internship site, approval of the CES internship coordinator, and completion of learning agreement. May be repeated for credit up to 2.00 units. Cannot be audited. Cannot be taken Credit/No Credit.*