SCIENCE, TECHNOLOGY, AND SOCIETY

Courses offered by the Program in Science, Technology, and Society are listed under the subject code STS on the ExploreCourses web site (https://explorecourses.stanford.edu/search?q=STS&view=catalog&page=0&academicYear=&filter-term-Autumn=on&filter-term-Winter=on&filter-term-Spring=on&filter-term-Summer=on&collapse=&filter-departmentcode-STS=on&filter-catalognumber-STS=on&filter-coursestatus-Active=on&filter-catalognumber-STS=on).

Mission of the Undergraduate Program in Science, Technology, and Society

The Program in Science, Technology, and Society (STS) aims to provide students with an interdisciplinary framework through which to understand the complex interactions of science, technology and the social world. To major in STS, students work through a common core of courses drawn from the social sciences, the humanities, the natural and physical sciences and engineering. Students pursue coursework in one of five specialized areas:

- Communication and Media
- Innovation and Organization
- Nature and Environment
- Life Sciences and Health
- Politics and Policy

Students may also undertake research in affiliated laboratories and through the honors program for course units. All students complete a capstone project, either by taking one of the senior capstone courses (STS 200) or by applying for and completing an STS honors thesis. Students are encouraged to pursue mastery in at least one field from within the humanities or social sciences and at least one field from within the sciences or engineering. Majors may declare either a B.A. or a B.S. degree (see the specific requirements for each degree).

The Program's affiliated faculty represent over a dozen departments, including Anthropology, Communication, Computer Science, Education, Electrical Engineering, History, Law, Management Science and Engineering, Political Science and Sociology. By learning to bring such a rich collection of disciplinary approaches to bear on questions of science and technology, students graduate uniquely equipped to succeed in professions that demand fluency with both technical and social frameworks. Recent graduates of STS have entered top-ranked Ph.D. and MBA programs and forged successful careers in a variety of fields, including business, engineering, law, public service, medicine and academia.

Learning Outcomes (Undergraduate)

The Program expects undergraduate majors to be able to demonstrate the following learning outcomes. These learning outcomes are used in evaluating students and the Program in Science, Technology, and Society. Students are expected to demonstrate:

1. A knowledge of core theories and methods in the interdisciplinary field of STS.
2. An ability to deploy these theories and methods to analyze interactions between science, technology and society in particular historical and cultural contexts.
3. An ability to critically evaluate empirical evidence and theoretical claims in STS-related debates.
4. An ability to communicate clearly and persuasively about STS issues to a general audience in multiple media including oral presentation and writing.

Advising and Course Selection

The Program in Science, Technology, and Society offers an advising process that includes faculty, staff and peer advisers. Prospective majors must first meet with a peer adviser and then with the Program's Student Services Officer to determine which degree they will pursue (the B.A. or B.S.) and how they will fulfill the Program's basic requirements. When they are ready to declare, they meet with the Program's Student Services Officer to submit their degree plan and then the Associate Director reviews the coursework for intellectual coherence. Majors are then assigned to a faculty adviser who serves as an intellectual mentor and helps them identify the core questions driving their interest in the field. The Program also sponsors a wide variety of events designed to help students meet their colleagues and Program alumni, discover research and internship opportunities, and make their way toward the career of their choice.

STS Core

The program offers a Bachelor of Arts and Bachelor of Science in Science, Technology, and Society. Both degree programs require that the student complete the STS Core.

		Units
With a grade of 'C' or higher in each course, complete 8 courses satisfying the following requirements:		
A. Gateway Requirement		
STS 1	The Public Life of Science and Technology	4
B. Disciplinary Requirement: six courses, one of these courses must be a STS WIM course and at least one of these courses must be a STS Global course. Note 1 & 2		
1. Social Sciences and Humanities Courses (complete 4 courses) Note 3 & 4		13-20
ANTHRO 41	Genes and Identity	
ANTHRO 82	Medical Anthropology	
ANTHRO 90C	Theory of Ecological and Environmental Anthropology	
ANTHRO 93B	Prefield Research Seminar: Non-Majors	
ANTHRO 126	Urban Culture in Global Perspective	
ANTHRO 138	Medical Ethics in a Global World: Examining Race, Difference and Power in the Research Enterprise	
ANTHRO 167A	A Wilderness Empire: The Political Ecology of California	
COMM 104W	Reporting, Writing, and Understanding the News	
COMM 120W	Digital Media in Society	
COMM 137W	The Dialogue of Democracy	
COMM 142W	Media Economics	
ECON 106	World Food Economy	
EDUC 120	Sociology of Science	
HISTORY 44Q	Gendered Innovations in Science, Medicine, Engineering, and Environment	
HISTORY 79C	The Ethical Challenges of Climate Change	
HISTORY 104D	International Security in a Changing World	
HISTORY 140	World History of Science	
HISTORY 140A	The Scientific Revolution	
HISTORY 144	Women and Gender in Science, Medicine and Engineering	
HISTORY 179C	The Ethical Challenges of Climate Change	

PHIL 60	Introduction to Philosophy of Science	
PHIL 167A	Philosophy of Biology	
POLISCI 233F	Science, technology and society and the humanities in the face of the looming disaster	
RELIGST 31	The Religious Life of Things	
SOC 114	Economic Sociology	
STS 151	The Future of Information	
STS 166	Knowledge and Information Infrastructures	
STS 181	Techno-metabolism: Technology, Society, and the Anthropocene	
STS 191W	Doing STS: Introduction to Research	
2. Engineering and Science Courses (complete 2 courses)		6-10
BIOE 131	Ethics in Bioengineering	
CEE 64	Air Pollution and Global Warming: History, Science, and Solutions	
CS 181W	Computers, Ethics, and Public Policy	
EARTHSYS 112	Human Society and Environmental Change	
EARTHSYS 149	Wild Writing	
EARTHSYS 177C	Specialized Writing and Reporting: Health and Science Journalism	
ENGR 60	Engineering Economics and Sustainability	
HUMBIO 173	Science, Innovation and the Law	
MS&E 193	Technology and National Security	
C. Senior Requirement		4-10
STS 200A	Food and Society: Politics, Culture and Technology	
or STS 200D	Predictive Technologies of Text	
or STS 200H	Ethics, Science, & Technology	
or STS 200K	Sciences of Learning	
STS 299	Advanced Individual Work	
Total Units		27-44

[1]WIM courses: BIOE 131, COMM 104W, COMM 120W, COMM 137W, CS 181W, BIOE 131, EARTHSYS 177C, HISTORY 140A STS 191W

[2]Global courses: ANTHRO 41, ANTHRO 126, ANTHRO 138 ECON 106, HISTORY 104D, HISTORY 140, HISTORY 44Q, HISTORY 144, CEE 64, POLISCI 233F

[3]May only take History 140A or History 232F

[4]May only take History 144 or History 44Q

Concentration Areas

In addition to the Core requirements common to all STS students, a minimum of 50 units, at least twelve courses, are required from among those designated on the appropriate Concentration Area course list (available in the Concentration Areas tab (p. 2) and on the STS web site). All courses must be taken for a letter grade if offered and may not be double-counted with core course work. Students may count no more than two course petitions outside the list of approved Concentration Area courses toward their STS degree plan. Thematic concentrations are organized around an STS-related area or topic:

1. Communication and Media
2. Innovation and Organization
3. Nature and Environment
4. Life Sciences and Health
5. Politics and Policy
6. Self-Designed Concentration

A student pursuing a Bachelor of Arts degree must take at least 8 classes from the Socio-Cultural Course menu, including at least 3 designated as Foundational, and at least 4 classes from the Technical Course menus.

A student pursuing a Bachelor of Science degree must take at least 8 classes from the Technical Course menu, and at least 4 classes from the Socio-Cultural Course menus, including at least 3 designated as Foundational.

Students in both degree programs are encouraged to pursue sequences of courses that build on one another to increase the coherence of their program and give depth to their skill set and knowledge related to STS.

Alternatively, subject to program approval, a student may choose to design a self-designed concentration. Students interested in designing their own concentration must work with the associate director and have their proposal approved at least 2 quarters prior to your graduating quarter. A proposal (5 to 10 pages) should (a) describe your intellectual objectives in detail, (b) explain why a self-designed concentration is the optimal way to pursue these objectives (as opposed to the five STS concentrations or other majors at Stanford), and (c) list at least 12 courses and 50 units that comprise the plan of study. Students with a self-designed concentration must fulfill the same core requirements as other STS students. More information can be found on the STS website (https://sts.stanford.edu/major-sts/thematic-concentrations).

Each student's Concentration Area, certified or self-designed, requires the approval of the STS Associate Director.

Concentration Area Course Lists

Communication and Media

Thematic concentration in Communication and Media:

		Units
Socio-Cultural Courses		
AMSTUD 96	Signal to Noise: The Sounds of American Culture	
AMSTUD 133	Technology and American Visual Culture	
AMSTUD 143X	Starstuff: Space and the American Imagination	
ARTHIST 164A	Technology and the Visual Imagination	
ARTHIST 245	Art, Business & the Law	
ARTSTUDI 173E	Cell Phone Photography	
ARTSTUDI 174B	Creativity in the Age of Facebook: Making Art for and from Networks	
ARTSTUDI 236	Future Media, Media Archaeologies	
COMM 106	Communication Research Methods	
COMM 108	Media Processes and Effects	
COMM 120W	Digital Media in Society	
COMM 142W	Media Economics	
COMM 154	The Politics of Algorithms	
COMM 166	Virtual People	
COMM 172	Media Psychology	
CS 181	Computers, Ethics, and Public Policy	
EARTHSYS 177C	Specialized Writing and Reporting: Health and Science Journalism	
EDUC 120	Sociology of Science	
EDUC 226	Curating Experience: Representation in and beyond Museums	

ENGR 145	Technology Entrepreneurship
FILMSTUD 6	Introduction to Media
HISTORY 204D	Advanced Topics in Agnotology
HISTORY 207J	Visual Technologies and Environmental Thinking
HISTORY 307J	Visual Technologies and Environmental Thinking
INTLPOL 221	Politics of Data: Algorithmic Culture, Big Data, and Information Waste
ME 267	Ethics and Equity in Transportation Systems
MS&E 180	Organizations: Theory and Management
OSPFLOR 28	Between Art and Science: the Evolution of Techniques from Antiquity to Leonardo da Vinci
OSPFLOR 48	Sharing Beauty in Florence: Collectors, Collections and the Shaping of the Western Museum Tradition
OSPFLOR 49	On-Screen Battles: Filmic Portrayals of Fascism and World War II
OSPFLOR 67	The Celluloid Gaze: Gender, Identity and Sexuality in Cinema
OSPPARIS 30	The Avant Garde in France through Literature, Art, and Theater
PSYCH 30	Introduction to Perception
PSYCH 75	Introduction to Cultural Psychology
RELIGST 31	The Religious Life of Things
SOC 180A	Foundations of Social Research
STS 123	Making of a Nuclear World: History, Politics, and Culture
STS 151	The Future of Information
STS 166	Knowledge and Information Infrastructures
STS 181	Techno-metabolism: Technology, Society, and the Anthropocene
STS 191	Doing STS: Introduction to Research
SYMSYS 1	Minds and Machines
SYMSYS 245	Cognition in Interaction Design
TAPS 253T	Virtual Realities: Art, Technology, Performance
Technical Courses	
ARTSTUDI 130	Interactive Art: Making it with Arduino
ARTSTUDI 160	Intro to Digital / Physical Design
ARTSTUDI 168	Data as Material
ARTSTUDI 176	Time Shifts
ARTSTUDI 177	Video Art I
ARTSTUDI 179	Digital Art I
ARTSTUDI 275	PHOTOGRAPHY II: Digital
CEE 112A	Industry Applications of Virtual Design & Construction
CME 108	Introduction to Scientific Computing
COMM 176	Advanced Digital Media Production
CS 102	Big Data - Tools and Techniques
CS 103	Mathematical Foundations of Computing
CS 105	Introduction to Computers
CS 106A	Programming Methodology
CS 106B	Programming Abstractions
CS 106X	Programming Abstractions (Accelerated)
CS 107	Computer Organization and Systems
CS 108	Object-Oriented Systems Design
CS 109	Introduction to Probability for Computer Scientists
CS 110	Principles of Computer Systems
CS 124	From Languages to Information
CS 144	Introduction to Computer Networking
CS 145	Data Management and Data Systems
CS 147	Introduction to Human-Computer Interaction Design
CS 148	Introduction to Computer Graphics and Imaging
CS 154	Introduction to Automata and Complexity Theory
CS 161	Design and Analysis of Algorithms
CS 194H	User Interface Design Project
CS 221	Artificial Intelligence: Principles and Techniques
CS 224W	Analysis of Networks
CS 247	Human-Computer Interaction Design Studio
CS 248	Interactive Computer Graphics
CS 255	Introduction to Cryptography
CS 376	Human-Computer Interaction Research
ECON 102A	Introduction to Statistical Methods (Postcalculus) for Social Scientists
EE 101A	Circuits I
EE 101B	Circuits II
EE 102A	Signal Processing and Linear Systems I
EE 102B	Signal Processing and Linear Systems II
EE 108	Digital System Design
EE 168	Introduction to Digital Image Processing
EE 169	Introduction to Bioimaging
EE 180	Digital Systems Architecture
ENGR 150	Data Challenge Lab
HUMBIO 145L	The Biology and Evolution of Language
ME 125	Visual Frontiers
MS&E 111	Introduction to Optimization
MS&E 120	Probabilistic Analysis
MS&E 130	Information Networks and Services
MS&E 135	Networks
MUSIC 220A	Fundamentals of Computer-Generated Sound
MUSIC 220B	Compositional Algorithms, Psychoacoustics, and Computational Music
MUSIC 254	Music Query, Analysis, and Style Simulation
MUSIC 257	Neuroplasticity and Musical Gaming
OSPCPTWN 67	ICT4D: An Introduction to the Use of ICTs for Development
SOC 180B	Introduction to Data Analysis
STATS 60	Introduction to Statistical Methods: Precalculus
STATS 191	Introduction to Applied Statistics

Innovation and Organization

Thematic concentration in Innovation and Organization:

		Units
Socio-Cultural Courses		
AMSTUD 96	Signal to Noise: The Sounds of American Culture	
AMSTUD 133	Technology and American Visual Culture	
ANTHRO 41	Genes and Identity	
ANTHRO 136	The Anthropology of Global Supply Chains	
ANTHRO 154	Anthropology of Drugs: Experience, Capitalism, Modernity	
ARTHIST 147	Modernism and Modernity	
ARTSTUDI 174B	Creativity in the Age of Facebook: Making Art for and from Networks	
ARTSTUDI 236	Future Media, Media Archaeologies	
BIO 182	Modeling Cultural Evolution	
CEE 32B	Design Theory	
CLASSICS 156	Design of Cities	
COMM 154	The Politics of Algorithms	
CS 181	Computers, Ethics, and Public Policy	
ECON 118	Development Economics	
ECON 145	Labor Economics	
EDUC 120	Sociology of Science	
ENGR 145	Technology Entrepreneurship	
HISTORY 44Q	Gendered Innovations in Science, Medicine, Engineering, and Environment	
HISTORY 140	World History of Science	
HISTORY 140A	The Scientific Revolution	
HISTORY 144	Women and Gender in Science, Medicine and Engineering	
HISTORY 203C	History of Ignorance	
HUMBIO 173	Science, Innovation and the Law	
INTLPOL 221	Politics of Data: Algorithmic Culture, Big Data, and Information Waste	
ME 120	History and Philosophy of Design	
ME 177	Global Engineers' Education	
ME 267	Ethics and Equity in Transportation Systems	
ME 297	Forecasting for Innovators:Technology, Tools & Social Change	
MS&E 175	Innovation, Creativity, and Change	
MS&E 177	Creativity Rules	
MS&E 180	Organizations: Theory and Management	
MS&E 185	Global Work	
MS&E 256	Technology Assessment and Regulation of Medical Devices	
OSPBER 126X	A People's Union? Money, Markets, and Identity in the EU	
OSPCPTWN 36	The Archaeology of Southern African Hunter Gatherers	
OSPFLOR 28	Between Art and Science: the Evolution of Techniques from Antiquity to Leonardo da Vinci	
OSPFLOR 48	Sharing Beauty in Florence: Collectors, Collections and the Shaping of the Western Museum Tradition	
OSPFLOR 58	Space as History: Social Vision and Urban Change	
OSPFLOR 115Y	Building the Cathedral and the Town Hall: Constructing and Deconstructing Symbols of a Civilization	
OSPOXFRD 45	British Economic Policy since World War II	
OSPPARIS 30	The Avant Garde in France through Literature, Art, and Theater	
OSPPARIS 44	EAP. Analytical Drawing and Graphic Art	
OSPPARIS 72	The Ceilings of Paris	
OSPPARIS 92	Building Paris: Its History, Architecture, and Urban Design	
OSPSANTG 29	Sustainable Cities: Comparative Transportation Systems in Latin America	
OSPSANTG 71	Santiago: Urban Planning, Public Policy, and the Built Environment	
OSPSANTG 119X	The Chilean Economy: History, International Relations, and Development Strategies	
PUBLPOL 134	Ethics on the Edge: Business, Non-Profit Organizations, Government, and Individuals	
PUBLPOL 353A	Science and Technology Policy	
RELIGST 31	The Religious Life of Things	
SOC 114	Economic Sociology	
SOC 160	Formal Organizations	
SOC 162	The Social Regulation of Markets	
SOC 168	Global Organizations: The Matrix of Change	
SOC 180A	Foundations of Social Research	
STS 123	Making of a Nuclear World: History, Politics, and Culture	
STS 151	The Future of Information	
STS 166	Knowledge and Information Infrastructures	
STS 181	Techno-metabolism: Technology, Society, and the Anthropocene	
STS 190	Issues in Technology and the Environment	
STS 191	Doing STS: Introduction to Research	
SYMSYS 1	Minds and Machines	
SYMSYS 245	Cognition in Interaction Design	
TAPS 253T	Virtual Realities: Art, Technology, Performance	
Technical Courses		
ARTSTUDI 130	Interactive Art: Making it with Arduino	
ARTSTUDI 160	Intro to Digital / Physical Design	
ARTSTUDI 168	Data as Material	
CS 102	Big Data - Tools and Techniques	
CS 105	Introduction to Computers	
CS 106A	Programming Methodology	
CS 106B	Programming Abstractions	
CS 106X	Programming Abstractions (Accelerated)	
CS 107	Computer Organization and Systems	
CS 108	Object-Oriented Systems Design	
CS 109	Introduction to Probability for Computer Scientists	
CS 110	Principles of Computer Systems	
CS 124	From Languages to Information	
CS 147	Introduction to Human-Computer Interaction Design	
CS 194H	User Interface Design Project	
CS 221	Artificial Intelligence: Principles and Techniques	
CS 223A	Introduction to Robotics	
CS 225A	Experimental Robotics	
CS 247	Human-Computer Interaction Design Studio	
CS 376	Human-Computer Interaction Research	
CS 402L	Beyond Bits and Atoms - Lab	

ECON 102A	Introduction to Statistical Methods (Postcalculus) for Social Scientists
EE 101A	Circuits I
EE 101B	Circuits II
EE 102A	Signal Processing and Linear Systems I
EE 102B	Signal Processing and Linear Systems II
EE 108	Digital System Design
EE 169	Introduction to Bioimaging
EE 180	Digital Systems Architecture
ENGR 14	Intro to Solid Mechanics
ENGR 40M	An Intro to Making: What is EE
ENGR 60	Engineering Economics and Sustainability
ENGR 110	Perspectives in Assistive Technology (ENGR 110)
ENGR 150	Data Challenge Lab
ME 21	Renaissance Machine Design
ME 80	Mechanics of Materials
ME 101	Visual Thinking
ME 102	Foundations of Product Realization
ME 115A	Introduction to Human Values in Design
ME 115B	Product Design Methods
ME 203	Design and Manufacturing
ME 216A	Advanced Product Design: Needfinding
MS&E 52	Introduction to Decision Making
MS&E 111	Introduction to Optimization
MS&E 120	Probabilistic Analysis
MS&E 121	Introduction to Stochastic Modeling
MS&E 130	Information Networks and Services
MS&E 135	Networks
MS&E 152	Introduction to Decision Analysis
MS&E 184	Future of Work: Issues in Organizational Learning and Design
MUSIC 220A	Fundamentals of Computer-Generated Sound
MUSIC 220B	Compositional Algorithms, Psychoacoustics, and Computational Music
MUSIC 257	Neuroplasticity and Musical Gaming
OSPCPTWN 67	ICT4D: An Introduction to the Use of ICTs for Development
SOC 180B	Introduction to Data Analysis
STATS 60	Introduction to Statistical Methods: Precalculus
STATS 110	Statistical Methods in Engineering and the Physical Sciences
STATS 116	Theory of Probability
STATS 191	Introduction to Applied Statistics

Nature and Environment

Thematic concentration in Nature and Environment:

		Units
Socio-Cultural Courses		
AMSTUD 143X	Starstuff: Space and the American Imagination	
ANTHRO 90C	Theory of Ecological and Environmental Anthropology	
ANTHRO 126	Urban Culture in Global Perspective	
ANTHRO 166	Political Ecology of Tropical Land Use: Conservation, Natural Resource Extraction, and Agribusiness	
BIOE 122	Biosecurity and Bioterrorism Response	
CEE 175A	California Coast: Science, Policy, and Law	
CLASSICS 156	Design of Cities	
EARTHSYS 105	Food and Community: Food Security, Resilience and Equity	
EARTHSYS 112	Human Society and Environmental Change	
EARTHSYS 177C	Specialized Writing and Reporting: Health and Science Journalism	
EARTHSYS 185	Feeding Nine Billion	
ECON 106	World Food Economy	
ECON 155	Environmental Economics and Policy	
EDUC 120	Sociology of Science	
ESS 112	Human Society and Environmental Change	
HISTORY 140	World History of Science	
HISTORY 140A	The Scientific Revolution	
HISTORY 203C	History of Ignorance	
HISTORY 207J	Visual Technologies and Environmental Thinking	
HISTORY 307J	Visual Technologies and Environmental Thinking	
HUMBIO 2B	Culture, Evolution, and Society	
HUMBIO 4B	Environmental and Health Policy Analysis	
ME 297	Forecasting for Innovators:Technology, Tools & Social Change	
MS&E 92Q	International Environmental Policy	
OSPCPTWN 36	The Archaeology of Southern African Hunter Gatherers	
OSPFLOR 28	Between Art and Science: the Evolution of Techniques from Antiquity to Leonardo da Vinci	
OSPPARIS 91	The Future of Globalization: Economics, Politics and the Environment	
OSPPARIS 97	Le Grand Paris: Paris of the 21st Century	
OSPSANTG 29	Sustainable Cities: Comparative Transportation Systems in Latin America	
OSPSANTG 71	Santiago: Urban Planning, Public Policy, and the Built Environment	
PHIL 167A	Philosophy of Biology	
POLISCI 110G	Governing the Global Economy	
POLISCI 114S	International Security in a Changing World	
POLISCI 233F	Science, technology and society and the humanities in the face of the looming disaster	
SOC 180A	Foundations of Social Research	
STS 123	Making of a Nuclear World: History, Politics, and Culture	
STS 166	Knowledge and Information Infrastructures	
STS 181	Techno-metabolism: Technology, Society, and the Anthropocene	
STS 190	Issues in Technology and the Environment	
STS 191	Doing STS: Introduction to Research	
URBANST 164	Sustainable Cities	
Technical Courses		
BIO 138	Ecosystem Services: Frontiers in the Science of Valuing Nature	
BIO 144	Conservation Biology: A Latin American Perspective	

BIOHOPK 172H	Marine Ecology: From Organisms to Ecosystems
BIOHOPK 187H	Sensory Ecology
CEE 64	Air Pollution and Global Warming: History, Science, and Solutions
CEE 70	Environmental Science and Technology
CEE 73	Water: An Introduction
CEE 100	Managing Sustainable Building Projects
CEE 107A	Understanding Energy
CEE 107S	Understanding Energy - Essentials
CEE 120A	Building Information Modeling Workshop
CEE 124	Sustainable Development Studio
CEE 171	Environmental Planning Methods
CEE 176A	Energy Efficient Buildings
CEE 176B	100% Clean, Renewable Energy and Storage for Everything
CEE 272R	Modern Power Systems Engineering
CHEMENG 60Q	Environmental Regulation and Policy
CS 102	Big Data - Tools and Techniques
EARTHSYS 101	Energy and the Environment
EARTHSYS 102	Fundamentals of Renewable Power
EARTHSYS 104	The Water Course
EARTHSYS 142	Remote Sensing of Land
EARTHSYS 155	Science of Soils
EARTHSYS 180	Principles and Practices of Sustainable Agriculture
ENERGY 104	Sustainable Energy for 9 Billion
ENERGY 120	Fundamentals of Petroleum Engineering
ENERGY 160	Uncertainty Quantification in Data-Centric Simulations
ENERGY 240	Data science for geoscience
ENGR 25E	Energy: Chemical Transformations for Production, Storage, and Use
ENGR 60	Engineering Economics and Sustainability
MATSCI 156	Solar Cells, Fuel Cells, and Batteries: Materials for the Energy Solution
OSPAUSTL 10	Coral Reef Ecosystems
OSPAUSTL 25	Freshwater Systems
OSPAUSTL 30	Coastal Forest Ecosystems
OSPMADRD 27	Canarian Night Skies
PHYSICS 240	Introduction to the Physics of Energy
PHYSICS 241	Introduction to Nuclear Energy
SOC 180B	Introduction to Data Analysis
STATS 60	Introduction to Statistical Methods: Precalculus
STATS 191	Introduction to Applied Statistics

Life Sciences and Health

Thematic concentration in Life Sciences and Health:

		Units
Social-Cultural Courses		
AMSTUD 156H	Women and Medicine in US History: Women as Patients, Healers and Doctors	
ANTHRO 41	Genes and Identity	
ANTHRO 82	Medical Anthropology	
ANTHRO 138	Medical Ethics in a Global World: Examining Race, Difference and Power in the Research Enterprise	
ANTHRO 139C	Anthropology of Global Health	
ANTHRO 154	Anthropology of Drugs: Experience, Capitalism, Modernity	
ARTSTUDI 284	Art and Biology	
BIOE 131	Ethics in Bioengineering	
EARTHSYS 112	Human Society and Environmental Change	
EDUC 120	Sociology of Science	
EDUC 340	Psychology and American Indian/Alaska Native Mental Health	
FRENCH 219	The Renaissance Body in French Literature and Medicine	
GENE 104Q	Law and the Biosciences	
HISTORY 44Q	Gendered Innovations in Science, Medicine, Engineering, and Environment	
HISTORY 140	World History of Science	
HISTORY 144	Women and Gender in Science, Medicine and Engineering	
HISTORY 203C	History of Ignorance	
HISTORY 243C	People, Plants, and Medicine: Colonial Science and Medicine	
HISTORY 243G	Tobacco and Health in World History	
HUMBIO 2B	Culture, Evolution, and Society	
HUMBIO 3B	Behavior, Health, and Development	
HUMBIO 4B	Environmental and Health Policy Analysis	
HUMBIO 122S	Social Class, Race, Ethnicity, and Health	
HUMBIO 174	Foundations of Bioethics	
MED 157	Foundations for Community Health Engagement	
MS&E 256	Technology Assessment and Regulation of Medical Devices	
OSPFLOR 70	The Value of Life: Philosophical Foundations	
OSPMADRD 57	Health Care: A Contrastive Analysis between Spain and the U.S.	
OSPMADRD 72	Issues in Bioethics Across Cultures	
OSPPARIS 98	Global Health Systems: the Future	
PHIL 60	Introduction to Philosophy of Science	
PHIL 167A	Philosophy of Biology	
PSYCH 30	Introduction to Perception	
PSYCH 75	Introduction to Cultural Psychology	
PUBLPOL 122	Biosecurity and Bioterrorism Response	
SOC 152	The Social Determinants of Health	
SOC 180A	Foundations of Social Research	
STS 123	Making of a Nuclear World: History, Politics, and Culture	
STS 181	Techno-metabolism: Technology, Society, and the Anthropocene	
STS 190	Issues in Technology and the Environment	
STS 191	Doing STS: Introduction to Research	
Technical Courses		
ANTHRO 113	Culture and Epigenetics: Towards A Non-Darwinian Synthesis	
BIO 45	Introduction to Laboratory Research in Cell and Molecular Biology	
BIO 46	Introduction to Research in Ecology and Evolutionary Biology	
BIO 109A	Extending Life by Controlling Chronic Disease	

BIO 109B	The Human Genome and Disease: Genetic Diversity and Personalized Medicine
BIO 144	Conservation Biology: A Latin American Perspective
BIO 150	Human Behavioral Biology
BIOE 44	Fundamentals for Engineering Biology Lab
BIOE 80	Introduction to Bioengineering (Engineering Living Matter)
BIOE 101	Systems Biology
BIOE 103	Systems Physiology and Design
CHEM 31A	Chemical Principles I
CHEM 31B	Chemical Principles II
CHEM 31X	Chemical Principles Accelerated
CHEM 33	Structure and Reactivity of Organic Molecules
CHEM 35	Organic Chemistry of Bioactive Molecules
CHEM 130	Organic Chemistry Laboratory
CHEM 131	Organic Polyfunctional Compounds
CHEM 171	Physical Chemistry I
COMPMED 87Q	Laboratory Mouse in Biomedical Research
CS 102	Big Data - Tools and Techniques
EE 102A	Signal Processing and Linear Systems I
EE 102B	Signal Processing and Linear Systems II
EE 169	Introduction to Bioimaging
EE 372	Data Science for High Throughput Sequencing
HUMBIO 2A	Genetics, Evolution, and Ecology
HUMBIO 3A	Cell and Developmental Biology
HUMBIO 4A	The Human Organism
HUMBIO 89	Introduction to Health Sciences Statistics
HUMBIO 145L	The Biology and Evolution of Language
HUMBIO 167	The Art of Vision
OSPAUSTL 10	Coral Reef Ecosystems
OSPAUSTL 25	Freshwater Systems
OSPAUSTL 30	Coastal Forest Ecosystems
SOC 180B	Introduction to Data Analysis
STATS 60	Introduction to Statistical Methods: Precalculus
STATS 141	Biostatistics
STATS 191	Introduction to Applied Statistics

Politics and Policy

Thematic concentration in Politics and Policy:

		Units
Socio-Cultural Courses		
AMSTUD 133	Technology and American Visual Culture	
AMSTUD 143X	Starstuff: Space and the American Imagination	
ANTHRO 138	Medical Ethics in a Global World: Examining Race, Difference and Power in the Research Enterprise	
ANTHRO 139C	Anthropology of Global Health	
ANTHRO 166	Political Ecology of Tropical Land Use: Conservation, Natural Resource Extraction, and Agribusiness	
BIOE 122	Biosecurity and Bioterrorism Response	
COMM 137W	The Dialogue of Democracy	
COMM 154	The Politics of Algorithms	
CS 181	Computers, Ethics, and Public Policy	
ECON 106	World Food Economy	
EDUC 120	Sociology of Science	
ESS 112	Human Society and Environmental Change	
GERMAN 132	History and Politics of the Future in Germany, 1900-Present	
HISTORY 102	History of the International System	
HISTORY 103F	The Changing Face of War: Introduction to Military History	
HISTORY 104D	International Security in a Changing World	
HISTORY 140	World History of Science	
HISTORY 203C	History of Ignorance	
HISTORY 204D	Advanced Topics in Agnotology	
HISTORY 261G	Presidents and Foreign Policy in Modern History	
HUMBIO 173	Science, Innovation and the Law	
INTLPOL 221	Politics of Data: Algorithmic Culture, Big Data, and Information Waste	
INTNLREL 140A	International Law and International Relations	
INTNLREL 140C	The U.S., U.N. Peacekeeping, and Humanitarian War	
INTNLREL 180A	Transitional Justice, Human Rights, and International Criminal Tribunals	
ME 267	Ethics and Equity in Transportation Systems	
MS&E 193	Technology and National Security	
OSPCPTWN 43	Public and Community Health in Sub-Saharan Africa	
OSPFLOR 49	On-Screen Battles: Filmic Portrayals of Fascism and World War II	
OSPMADRD 57	Health Care: A Contrastive Analysis between Spain and the U.S.	
OSPPARIS 91	The Future of Globalization: Economics, Politics and the Environment	
OSPPARIS 97	Le Grand Paris: Paris of the 21st Century	
OSPSANTG 71	Santiago: Urban Planning, Public Policy, and the Built Environment	
OSPSANTG 119X	The Chilean Economy: History, International Relations, and Development Strategies	
POLISCI 102	Politics and Public Policy	
POLISCI 110G	Governing the Global Economy	
POLISCI 110Y	War and Peace in American Foreign Policy	
POLISCI 114D	Democracy, Development, and the Rule of Law	
POLISCI 114S	International Security in a Changing World	
POLISCI 122	Introduction to American Law	
POLISCI 124L	The Psychology of Communication About Politics in America	
POLISCI 150A	Data Science for Politics	
POLISCI 214R	Challenges and Dilemmas in American Foreign Policy	
POLISCI 233F	Science, technology and society and the humanities in the face of the looming disaster	
PUBLPOL 122	Biosecurity and Bioterrorism Response	
PUBLPOL 353A	Science and Technology Policy	
SOC 180A	Foundations of Social Research	
STS 123	Making of a Nuclear World: History, Politics, and Culture	

STS 151	The Future of Information
STS 166	Knowledge and Information Infrastructures
STS 181	Techno-metabolism: Technology, Society, and the Anthropocene
STS 190	Issues in Technology and the Environment
STS 191	Doing STS: Introduction to Research
Technical Courses	
CEE 70	Environmental Science and Technology
CEE 107A	Understanding Energy
CEE 171	Environmental Planning Methods
CHEM 31A	Chemical Principles I
CHEM 31B	Chemical Principles II
CHEM 31X	Chemical Principles Accelerated
CHEM 33	Structure and Reactivity of Organic Molecules
CHEM 35	Organic Chemistry of Bioactive Molecules
CS 102	Big Data - Tools and Techniques
CS 105	Introduction to Computers
CS 106A	Programming Methodology
CS 106B	Programming Abstractions
CS 106X	Programming Abstractions (Accelerated)
CS 107	Computer Organization and Systems
CS 108	Object-Oriented Systems Design
CS 109	Introduction to Probability for Computer Scientists
CS 110	Principles of Computer Systems
CS 255	Introduction to Cryptography
MS&E 93Q	Nuclear Weapons, Energy, Proliferation, and Terrorism
PHYSICS 41	Mechanics
PHYSICS 43	Electricity and Magnetism
PHYSICS 240	Introduction to the Physics of Energy
PHYSICS 241	Introduction to Nuclear Energy
POLISCI 150A	Data Science for Politics
POLISCI 150B	Machine Learning for Social Scientists
POLISCI 150C	Causal Inference for Social Science
SOC 180B	Introduction to Data Analysis
STATS 60	Introduction to Statistical Methods: Precalculus
STATS 191	Introduction to Applied Statistics

Interdisciplinary Honors in Science, Technology, and Society

The Program in Science, Technology, and Society (STS) offers an opportunity for undergraduates to graduate with Interdisciplinary Honors in STS. The STS honors program is open to STS majors as well as students from other majors.

Students accepted into the program carry out an original honors project, working with a faculty adviser. For STS majors, this project also fulfills the requirements for a capstone course and a sociocultural concentration course. An STS honors thesis tackles a significant problem or question related to the intersection of science, technology, and society. Students draw research methods from one or more of the disciplines that shape STS, such as history, sociology, communication, anthropology, environmental science, computer programming/modeling, engineering, economics, political science, and art history, while also capitalizing on unique analytical perspectives of STS as an intellectual field. STS interdisciplinary honors signals expertise in a given area, organizational skills, and intellectual rigor, and students have used it as a springboard for graduate studies and for careers in fields such as information technology, entrepreneurship, finance, public policy, media, education, law, medicine, and the nonprofit sector. Past honors projects are on file in the STS office library, as well as the digital repository.

Admission

Students are encouraged to apply to the STS honors program during the Spring Quarter of their junior year. Late application is considered up to the add/drop deadline of the Autumn Quarter of their senior year.

For Majors in Science, Technology, and Society

In preparation for applying to the honors program in STS, students should:

1. Select an area of research interest in STS, prepare related research questions, and identify potential faculty advisers for an honors thesis based on those questions.
2. Attend one or more of the quarterly STS workshops offered for prospective honors students, and/or take STS 191 Introduction to Research in STS (offered Winter Quarter) or an alternative course on research methods approved by the STS honors program director, and/or speak with the STS honors program director.
3. Submit a research statement and an honors program application, following the parameters set out at STS Honors Program (https://sts.stanford.edu/major-sts/honors-program) web site.

For Majors in Other Departments and Programs

In addition to the requirements for STS majors, applicants from other departments should:

1. Meet with the honors program director as early as possible to ensure that they have sufficient background in relevant analytical and methodological approaches.
2. Satisfy one of the following:
   - Complete STS 1 The Public Life of Science and Technology, and either two courses approved as sociocultural foundational courses in STS, or two alternative courses approved by the STS honors program director as relevant to the proposed honors research in STS; or
   - Complete three courses approved by the STS honors program director as relevant to the proposed honors research in STS.

Interdisciplinary Honors Requirements

To graduate with Interdisciplinary Honors in STS, seniors in the honors program need to meet the following criteria:

1. Enroll in STS 299 with an honors faculty adviser to oversee the thesis for a minimum of 10 units total, with up to 5 units per quarter, over Autumn, Winter and Spring quarters. Students who choose to obtain Permit for Services Only (PSO) status during their final quarter may do so with the consent of the STS honors program director but they must still have enrolled in a minimum of 10 units of STS 299 during previous quarters.
2. Attend required monthly workshops for current STS honors students.
3. Complete a thesis judged worthy of an honors program by the faculty adviser and STS adviser.
4. Have an overall Stanford GPA of 3.4 at the end of Winter Quarter, senior year, or demonstrated academic competence.

STS Affiliated Faculty

Director and Professor of Education: John Willinsky

Associate Director: Kyoko Sato

Executive Board: Paula Findlen (History), Duana Fullwiley (Anthropology), Mark Granovetter (Sociology), Hank Greely (Law), Sarah Lochlann Jain

(Anthropology), Michael Lepech (Civil and Environmental Engineering), Robert McGinn (Management Science and Engineering), Brad Osgood (Electrical Engineering), Eric Roberts (Computer Science), Scott Sagan (Political Science), Fred Turner (Communication), John Willinsky (Education)

Affiliated Faculty and Staff: Jeremy Bailenson (Communication), Adam Banks (Graduate School of Education), Thomas Byers (Management Science and Engineering), Angèle Christin (Communication), Jean-Pierre Dupuy (French), Paul N. Edwards (CISAC and STS), Paula Findlen (History), Duana Fullwiley (Anthropology), Mark Granovetter, (Sociology), Hank Greely (Law), Ann Grimes (Communication), James T. Hamilton (Communication), Gabrielle Hecht (History) Pamela Hinds (Management Science and Engineering), Hector Hoyos (Iberian and Latin American Cultures), Miyako Inoue (Anthropology), Sarah Lochlann Jain (Anthropology), Robert Laughlin (Physics), Pamela Lee (Art and Art History), Michael Lepech (Civil and Environmental Engineering), Sandra Soo-Jin Lee (Biomedical Ethics), Helen Longino (Philosophy), Henry Lowood (Stanford University Libraries), Robert McGinn (Management Science and Engineering), Thomas Mullaney (History), Brad Osgood (Electrical Engineering), Walter Powell (Education), Robert Proctor (History), Jessica Riskin (History), Scott Sagan (Political Science), Kyoko Sato (STS), Londa Schiebinger (History), Michael Shanks (Classics, Anthropology), Mitchell Stevens (Education), Fred Turner (Communication), John Willinsky (Education)

Emeriti: James Adams (Management Science and Engineering, Mechanical Engineering), Barton Bernstein (History), Martin Hellman (Electrical Engineering), Eric Roberts (Computer Science), Walter Vincenti (Aeronautics and Astronautics), Gavin Wright (American Economic History)

Overseas Studies Courses in Science, Technology, and Society

The Bing Overseas Studies Program (http://bosp.stanford.edu) manages Stanford study abroad programs for Stanford undergraduates. Students should consult their department or program's student services office for applicability of Overseas Studies courses to a major or minor program.

The Bing Overseas Studies course search site (https://undergrad.stanford.edu/programs/bosp/explore/search-courses) displays courses, locations, and quarters relevant to specific majors.

For course descriptions and additional offerings, see the listings in the Stanford Bulletin's ExploreCourses (http://explorecourses.stanford.edu) or Bing Overseas Studies (http://bosp.stanford.edu).

		Units
OSPAUSTL 10	Coral Reef Ecosystems	3
OSPAUSTL 25	Freshwater Systems	3
OSPAUSTL 30	Coastal Forest Ecosystems	3
OSPBER 126X	A People's Union? Money, Markets, and Identity in the EU	4-5
OSPCPTWN 36	The Archaeology of Southern African Hunter Gatherers	4
OSPCPTWN 43	Public and Community Health in Sub-Saharan Africa	4
OSPCPTWN 67	ICT4D: An Introduction to the Use of ICTs for Development	3
OSPFLOR 28	Between Art and Science: the Evolution of Techniques from Antiquity to Leonardo da Vinci	4
OSPFLOR 41	The Florentine Sketchbook: A Visual Arts Practicum	4
OSPFLOR 48	Sharing Beauty in Florence: Collectors, Collections and the Shaping of the Western Museum Tradition	4
OSPFLOR 49	On-Screen Battles: Filmic Portrayals of Fascism and World War II	5
OSPFLOR 58	Space as History: Social Vision and Urban Change	4
OSPFLOR 67	The Celluloid Gaze: Gender, Identity and Sexuality in Cinema	4
OSPFLOR 115Y	Building the Cathedral and the Town Hall: Constructing and Deconstructing Symbols of a Civilization	4
OSPMADRD 27	Canarian Night Skies	4
OSPMADRD 45	Women in Art: Case Study in the Madrid Museums	4
OSPMADRD 57	Health Care: A Contrastive Analysis between Spain and the U.S.	4
OSPMADRD 72	Issues in Bioethics Across Cultures	4
OSPOXFRD 45	British Economic Policy since World War II	4-5
OSPPARIS 30	The Avant Garde in France through Literature, Art, and Theater	4
OSPPARIS 44	EAP. Analytical Drawing and Graphic Art	2
OSPPARIS 72	The Ceilings of Paris	4
OSPPARIS 91	The Future of Globalization: Economics, Politics and the Environment	5
OSPPARIS 92	Building Paris: Its History, Architecture, and Urban Design	4
OSPPARIS 97	Le Grand Paris: Paris of the 21st Century	4
OSPPARIS 98	Global Health Systems: the Future	5
OSPSANTG 29	Sustainable Cities: Comparative Transportation Systems in Latin America	5
OSPSANTG 71	Santiago: Urban Planning, Public Policy, and the Built Environment	5
OSPSANTG 119X	The Chilean Economy: History, International Relations, and Development Strategies	5