THE PROGRAM IN SCIENCE, TECHNOLOGY & SOCIETY (STS) AT STANFORD UNIVERSITY
REQUIREMENTS AND APPROVED COURSES
2016-2017

STS students take a set of Core STS Courses and a set of Socio-Cultural and Technical Courses in a selected Concentration Area. In putting their program together (on a B.A. or B.S. Form), students are advised to review the STS Program Policies on page 2. It is important to note that all degree courses must 1) be taken for a letter grade if offered, and 2) for at least the minimum amount of units listed in the attached course menus - even if the course offers registration for fewer credits. The course’s units and quarter are in parentheses: Autumn (A), Winter (W), Spring (S), Summer (SUM), and NO = not offered in 2016-2017 (but should be following year). Always confirm quarters with ExploreCourses!

I. STS CORE REQUIREMENTS (26+ units; 8 course minimum with C grade minimum, if declared after 8/31/2013)
   → Include at least one Writing in the Major (WIM) course (see ★) and, if declared after 8/31/2014, one STS Global course (see ⌘).

A. Gateway Requirement: STS 1: Public Life of Science and Technology (4, W) (strongly recommended prior to declaring)

B. Disciplinary Requirement:

Social Sciences and Humanities Courses (complete 4 courses)
- ANTHRO 41: Genes and Identity (3, NO) ★
- ANTHRO 90C: Theory of Ecological and Environmental Anthropology (5, W) ★
- ANTHRO 126: Urban Culture in Global Perspective (5, A) ★
- ANTHRO 138: Medical Ethics in a Global World: Examining Race, Difference and Power in the Research Enterprise (5, NO) ★
- ANTHRO 186: Culture and Madness: Anthropological and Psychiatric Approaches to Mental Illness (3-5, W) ★
- CLASSICS 151: Ten Things: An Archaeology of Design (3, NO)
- COMM 120W: Digital Media in Society (4-5, S) ★
- COMM 142W: Media Economics (4-5, W) ★
- ECON 106: World Food Economy (5, S) ★
- EDUC 120: Sociology of Science (3-4, NO)
- ENGLISH 184C: Data and Knowledge in the Humanities (5, S)
- HISTORY 5A: The History of Information: From Moveable Type to Machine Learning (4-5, S)
- HISTORY 131: Leonardo’s World: Science, Technology and Art, in the Renaissance (5, NO) ★
- HISTORY 140: World History of Science (5, NO) ★
- HISTORY 140A: Scientific Revolution (5, A) ★
  or HISTORY 232F: Scientific Revolution (5, W) ★
- HISTORY 144: Women and Gender in Science, Medicine and Engineering (5, W) ★
  or HISTORY 44Q: Gendered Innovations in Science, Medicine, Engineering, and Environment (4-5, W) ★
- HISTORY 203J: Water in World History (4-5, S) ★
- PHIL 60: Introduction to Philosophy of Science (5, A)
- POLISCI 233F: Science, Technology and Society and the Humanities in the Face of the Looming Disaster (3-5, W) ★
- RELIGST 31: The Religious Life of Things (3-5, W)
- SOC 114: Economic Sociology (4, A)

Engineering and Science Courses (complete 2 courses)
- CEE 64: Air Pollution and Global Warming: History, Science, and Solutions (3, W) ★
- CEE 146A: Engineering Economy (3, W)
- CS 181W: Computers, Ethics, and Public Policy (4, W/S) ★
- ENGR 131: Ethical Issues in Engineering (4, A/W/S)
- HUMBIO 173: Science, Innovation, and the Law [Prereq: HUMBIO Core or instructor consent] (5, NO)
- MS&E 193: Technology and National Security (3, A) ★
- MS&E 197: Ethics, Technology, and Public Policy (5, NO) ★

C. Senior Requirement:
- STS 200: Senior Capstone (4 or 5 units, A/W/S)
- STS 299: Honors Program (10+ units, A/W/S) [Equivalent to Capstone and 1 Socio-Cultural Concentration Area course]
II. CONCENTRATION AREA (50+ units; 12 course min.)

Students are encouraged to select courses in both the Core and Concentration Area around an identifiable set of topics and issues in STS, as well as at least one technical set of skills to develop a greater sense of expertise and application for their program. A student’s curriculum plan, initially and with any changes, must be reviewed and approved by the STS Associate Director and Undergraduate Advisor. The goal of that review is to help students maximize the intellectual coherence of their engagement with foundational ideas and approaches in STS, while developing strengths in the social sciences, humanities, science, and engineering. Information about pursuing a self-designed Concentration Area can be found on the STS Website.

1) Select a Concentration Area guided by the attached Socio-Cultural and Technical Courses:

A. COMMUNICATION AND MEDIA (formerly Information Technology, Media & Society), pages 3-4
B. INNOVATION AND ORGANIZATION (formerly Innovation, Technology & Organizations), pages 5-7
C. NATURE AND ENVIRONMENT (formerly Environment & Sustainability), pages 8-9
D. LIFE SCIENCES AND HEALTH (formerly Life Sciences & Biotechnology), pages 10-11
E. POLITICS AND POLICY (formerly Policy, Security & Technology), pages 12-13

2) Review the B.A. and B.S. degree requirements for the Concentration Areas (note the 50-unit requirement may require taking additional Concentration Area Courses):

Declared before 9/1/2015:
B.A. Degree: 8 Socio-Cultural Courses + 4 Technical Courses
B.S. Degree: 4 Socio-Cultural Courses + 8 Technical Courses

Declared on or after 9/1/2015:
B.A. Degree: 8 Socio-Cultural Courses (including 3 Foundational Courses) + 4 Technical Courses
B.S. Degree: 4 Socio-Cultural Courses (including 3 Foundational Courses) + 8 Technical Courses

STS PROGRAM POLICIES

- All degree courses must be taken for a letter grade if offered. If declared after 8/31/2013, must receive a minimum grade of C in all Core Courses.
- Courses cannot be taken for less than the minimum amount of units listed in the attached course menus, even if the course is offered for fewer units.
- Courses may not be double-counted toward both Core and Concentration Area requirements.
- AP credit does not count toward the STS major.
- Students may use only one introductory computer science course, CS 105 OR CS 106A, toward STS Core & Concentration Area requirements if declared after 8/31/2013.
- Students are responsible for any prerequisites. It is recommended that STS majors take the Math Calculus sequence (or have AP credit), as many Technical Courses approved for Concentration Areas require it.
- Students may count no more than two approved course petitions (subject to STS staff approval) toward their individual STS Concentration Area requirements (courses may not be petitioned for the Core). Freshmen seminars are not eligible for petition.
- Transfer students may petition equivalent and/or relevant STS coursework from institutions outside Stanford University, provided the Registrar has already awarded transfer credit. All such petitions are subject to approval by the STS staff approval.
A. COMMUNICATION AND MEDIA APPROVED COURSES

SOCIO-CULTURAL COURSES (formerly social science and humanities courses)
If declared after 8/31/2015, include 3 Foundational Courses (see ◆).

- AMSTUD 143X: Starstuff: Space and the American Imagination (5, A)
- ARTHIST 164A: Technology and the Visual Imagination (4, NO)
- ARTHIST 245: Art, Business & the Law (5, A)
- ARTSTUDI 174B: Creativity in the Age of Facebook Art For and From Networks (4, W/S)
- ARTSTUDI 236: Future Media, Media Archaeologies (3-4, W)
- COMM 1A: Mass Media, Society, and Democracy (4-5, NO)
- COMM 106: Communication Research Methods (4-5, W)
- COMM 108: Media Processes and Effects (4-5, S)
- COMM 120W: Digital Media in Society (4-5, S) *
- COMM 137W: The Dialogue of Democracy (4-5, NO)
- COMM 142W: Media Economics (4-5, W)
- COMM 166: Virtual People (4-5, W)
- COMM 172: Media Psychology (4-5, W)
- COMPLIT 271A: Futurity: Why the Past Matters (3-5, NO) *
- CS 181: Computers, Ethics, and Public Policy [Prereq: CS 106B or CS106X] (4, W/S)
- CS 546: Seminar on Liberation Technologies (1, NO)
- EDUC 120: Sociology of Science (3-4, NO) *
- EDUC 226: Curating Experience: Representation in and beyond Museums (3-4, W)
- EDUC 358: Learning, Sharing, Publishing, and Intellectual Property (3-4, NO)
- ENGLISH 184C: Data and Knowledge in the Humanities (5, S) *
- ENGLISH 184H: Text Technologies: A History (5, NO)*
- ENGLISH 202: History of the Book (5, W)
- ENGR 110: Perspectives in Assistive Technology (3, W)
- ENGR 129: The Internet in Global Context (4, NO)
- ENGR 131 (formerly STS 115): Ethical Issues in Engineering (4, A/W/S) *
- ENGR 145: Technology Entrepreneurship (4, W/SUM)
- FILMSTUD 6: Introduction to Media (5, A)
- GERMAN 154: Poetic Thinking Across Media (4, NO)
- HISTORY 5A: The History of Information: From Moveable Type to Machine Learning (4-5, S)*
- HISTORY 204D: Advanced Topics in Agnotology (4-5, NO)
- MS&E 180: Organizations: Theory and Management (4, A/S)
- MS&E 189: Social Networks - Theory, Methods, and Applications (3, NO) *
- MS&E 197: Ethics, Technology, and Public Policy (5, NO) *
- PSYCH 30: Introduction to Perception (3, A)
- PSYCH 75: Introduction to Cultural Psychology (5, W)
- RELIGST 31: The Religious Life of Things (3-5, W) *
- STS 140: Science, Technology and Politics (5, NO) *
- STS 191: Introduction to Research in STS (4, W) *
- SYMSYS 1: Minds and Machines (4, A)
- SYMSYS 245 (formerly 145): Cognition in Interaction Design (3, W)

Studying abroad? For approved overseas courses in this Concentration Area, see pages 14-15
TECHNICAL COURSES (formerly science and engineering courses)

- ARTSTUDI 130: Interactive Art: Making it with Arduino (4, S)
- ARTSTUDI 160: Intro to Digital/Physical Design (3-4, A/W/S)
- ARTSTUDI 168: Data as Material (4, A)
- ARTSTUDI 177: Video Art I (4, A/W)
- ARTSTUDI 179: Digital Art I (4, A/W/S)
- ARTSTUDI 275: Photography II: Digital (4, A/S)
- CEE 112A: Industry Applications of Virtual Design & Construction (3-4, W)
- CS 102: Big Data - Tools and Techniques, Discoveries and Pitfalls (3-4, NO)
- CS 105: Introduction to Computers (3-5, A)
- CS 106A: Programming Methodology (3-5, A/W/S/SUM)
- CS 106B: Programming Abstractions [Prereq: CS 106A] (3-5, A/W/S/SUM)
- CS 106X: Programming Abstractions (Accelerated) [Prereq: CS 106A] (3-5, A/W)
- CS 107: Computer Organization and Systems [Prereq: CS 106B or CS 106X] (3-5, A/W/S)
- CS 108: Object-Oriented Systems Design [Prereq: CS 107] (3-4, A/W)
- CS 109: Intro to Probability for Computer Scientists [Prereq: CS 103, 106B or 106X, & multivariate calculus] (3-5, W/S)
- CS 124: From Languages to Information [Prereq: CS 103, 107, 109] (3-4, W)
- CS 144: Introduction to Computer Networking [Prereq: CS 110] (3-4, A)
- CS 145: Introduction to Databases [Prereq: CS 103 and 107] (3-4, A)
- CS 147: Introduction to Human-Computer Interaction Design [Prereq: CS 106B or CS 106X] (3-5, A)
- CS 194H: User Interface Design Project (3-4, W)
- CS 221: Artificial Intelligence: Principles and Techniques (3-4, A) [Prereq: 103 or 103B/X, 106B or 106X, 107, 109]
- CS 224W: Social and Information Networks (3-4, A)
- CS 255: Introduction to Cryptography (3, W)
- CS 376: Human-Computer Interaction Research [Prereq: CS 147 or 247] (3-4, A)
- EE 101A: Circuits I [Prereq: ENGR 40 or ENGR 40M recommended] (4, W)
- EE 101B: Circuits II [Prereq: EE 101A, EE 102A] (4, S)
- EE 102A: Signal Processing and Linear Systems I [Prereq: MATH 53 or CME102] (4, W)
- EE 102B: Signal Processing and Linear Systems II [Prereq: EE102A] (4, S)
- EE 168: Introduction to Digital Image Processing (3-4, NO)
- EE 169: Introduction to Bioimaging [Prereq: EE 102A, EE 102B] (3, NO)
- HUMBIO 145L: The Biology and Evolution of Language (4-5, W)
- MS&E 107: Interactive Management Science (3, A)
- MS&E 111: Introduction to Optimization [Prereq: Math 51 or CME100] (4, A/S)
- MS&E 120: Probabilistic Analysis [Prereq: Math 51 or CME100] (5, A)
- MS&E 130: Information Networks and Services [Prereq: MS&E 111, MS&E 120, CS 106A] (3, W)
- MUSIC 220A: Fundamentals of Computer-Generated Sound (3-4, A)
- MUSIC 220B: Compositional Algorithms, Psychoacoustics, and Computational Music (3-4, W)
- MUSIC 254: Music Query, Analysis, and Style Simulation [Prereq: MUSIC 253] (3-4, S)
- MUSIC 257: Neuroplasticity and Musical Gaming (3-5, S)

Studying abroad? For approved overseas courses in this Concentration Area, see pages 14-15
## B. INNOVATION AND ORGANIZATION APPROVED COURSES

**SOCIO-CULTURAL COURSES** (formerly social science and humanities courses)
If declared after 8/31/2015, include 3 Foundational Courses (see ◆).

- ANTHRO 41: Genes and Identity (3, NO)
- ANTHRO 136: The Anthropology of Global Supply Chains (5, W)
- ANTHRO 154: Anthropology of Drugs: Experience, Capitalism, Modernity (5, NO)
- ARTHIST 147: Modernism and Modernity (4, W)
- ARTSTUDI 174B: Creativity in the Age of Facebook Art For and From Networks (4, W/S)
- ARTSTUDI 236: Future Media, Media Archaeologies (3-4, W)
- BIO 182: Modeling Cultural Evolution (3, W)
- CEE 32B (formerly ARTHIST 232B): Design Theory (4, NO)
- CLASSICS 151: Ten Things: An Archaeology of Design (3, NO)
- CS 181: Computers, Ethics and Public Policy [Prereq: CS 106B or 106X] (4, W/S)
- CS 546: Seminar on Liberation Technologies (1, NO)
- ECON 116: American Economic History [Prereq: ECON 1 or 1V] (5, S)
- ECON 118: Development Economics [Prereq: ECON 51, ECON 102B] (5, A)
- ECON 145: Labor Economics [Prereq: ECON 51, ECON 102B] (5, A)
- EDUC 120: Sociology of Science (3-4, NO)
- ENGLISH 184C: Data and Knowledge in the Humanities (5, S)
- ENGR 129: The Internet in Global Context (4, NO)
- ENGR 145: Technology Entrepreneurship (4, W/SUM)
- HISTORY 1C: Global History: The Modern Age (3-5, S)
- HISTORY 131: Leonardo's World: Science, Technology, and Art in the Renaissance (3-5, NO)
- HISTORY 140: World History of Science (5, NO)
- HISTORY 140A: Scientific Revolution (5, A)
- HISTORY 203C: History of Ignorance (5, NO)
- HUMBIO 173: Science, Innovation, and the Law [Prereq: HUMBIO Core or instructor consent] (5, NO)
- ME 120: History and Philosophy of Design (3, S)
- ME 177: Global Engineers' Education (3, S)
- ME 297: Forecasting for Innovators: Technology, Tools, and Social Change (3, W)
- MS&E 175: Innovation, Creativity, and Change (3-4, W)
- MS&E 177: Creativity Rules (4, S)
- MS&E 180: Organizations: Theory and Management (4, A/S)
- MS&E 181: Issues in Technology and Work (3, W)
- MS&E 185: Global Work (4, W/S)
- MS&E 189: Social Networks - Theory, Methods, and Applications (3, NO)
- MS&E 197: Ethics, Technology, and Public Policy (5, NO)
- PUBLPOL 102: Organizations and Public Policy [Prereq: ECON 1] (4-5, NO)
- PUBLPOL 134: Ethics On the Edge: Business, Non-Profit Organizations, Government, and Individuals (3, S)
- PUBLPOL 353: Science and Technology Policy (3-4, NO)
- RELIGST 31: The Religious Life of Things (3-5, W)
- SOC 114: Economic Sociology (4, A)
- SOC 115: Topics in Economic Sociology (5, NO)
- SOC 160: Formal Organizations (4, NO)
- SOC 161: The Social Science of Entrepreneurship (4, NO)
- SOC 162: Markets and Governance (4, S)
- SOC 168: Global Organizations: Managing Diversity (4, W)
- STS 140: Science, Technology and Politics (5, NO)
- STS 190: Issues in Technology and the Environment (4, S)
- STS 191: Introduction to Research in STS (4, W)
- SYMSYS 1: Minds and Machines (4, A)
SYMSYS 245 (formerly 145): Cognition in Interaction Design (3, W)

B. INNOVATION AND ORGANIZATION (Continued)

TECHNICAL COURSES (formerly science and engineering courses)

- ARTSTUDI 130: Interactive Art: Making it with Arduino (4, S)
- ARTSTUDI 160: Intro to Digital/Physical Design (3-4, A/W/S)
- ARTSTUDI 168: Data as Material (4, A)
- CEE 146A: Engineering Economy (3, W)
- CS 102: Big Data - Tools and Techniques, Discoveries and Pitfalls (3-4, NO)
- CS 105: Introduction to Computers (3-5, A)
- CS 106A: Programming Methodology (3-5, A/W/S/SUM)
- CS 106B: Programming Abstractions [Prereq: CS 106A] (3-5, A/W/S/SUM)
- CS 106X: Programming Abstractions (Accelerated) [Prereq: CS 106A] (3-5, A/W)
- CS 107: Computer Organization and Systems [Prereq: CS 106B or 106X] (3-5, A/W/S)
- CS 108: Object-Oriented Systems Design [Prereq: CS 107] (3-4, A/W)
- CS 109: Introduction to Probability for Computer Scientists [Prereq: CS 103, 106B or 106X & multivariate calculus] (3-5, W/S)
- CS 124: From Languages to Information [Prereq: CS 103, 107, 109] (3-4, W)
- CS 147: Introduction to Human-Computer Interaction Design [Prereq: CS 106B or 106X] (3-5, A)
- CS 194H: User Interface Design Project (3-4, W)
- CS 221: Artificial Intelligence: Principles and Techniques (3-4, A) [Prereq: 103 or 103B/X, 106B or 106X, 107, 109]
- CS 223A: Introduction to Robotics (3, W)
- CS 225A: Experimental Robotics [Prereq: CS 223A or equivalent] (3, S)
- CS 376: Human-Computer Interaction Research [Prereq: CS 147 or 247] (3-4, A)
- CS 402: Beyond Bits and Atoms: Designing Technological Tools (3-4, W)
- CS 402L: Beyond Bits and Atoms Lab (1-3, W)
- EE 101A: Circuits I [Prereq: ENGR 40 or ENGR 40M recommended] (4, W)
- EE 101B: Circuits II [Prereq: EE101A, EE102A] (4, S)
- EE 102A: Signal Processing and Linear Systems I [Prereq: MATH 53 or CME 102] (4, W)
- EE 102B: Signal Processing and Linear Systems II [Prereq: EE102A] (4, S)
- EE 169: Introduction to Bioimaging [Prereq: EE 102A, EE 102B] (3, NO)
- ENGR 14: Intro to Solid Mechanics [Prereq: PHYSICS 41] (4, A/W/S)
- ENGR 40M: An Intro to Making: What is EE [Prereq: CS 106A] (3-5, A/S)
- ME 101: Visual Thinking (4, A/W/S)
- ME 115A: Introduction to Human Values in Design (3, A)
- ME 115B: Product Design Methods [Prereq: ME 115A] (3, W)
- ME 203: Design and Manufacturing (4, A/W/S)
- MS&E 52: Introduction to Decision Making (3, SUM) – May take MS&E 52 or MS&E 152
- MS&E 107: Interactive Management Science (3, A)
- MS&E 111: Introduction to Optimization [Prereq: Math 51 or CME 100] (4, A/S)
- MS&E 120: Probabilistic Analysis [Prereq: Math 51 or CME 100] (5, A)
- MS&E 121: Introduction to Stochastic Modeling [Prereq: MS&E 120 or MS&E 125] (4, S)
- MS&E 130: Information Networks and Services [Prereq: MS&E 111, MS&E 120, CS 106A] (3, W)
- MS&E 152: Introduction to Decision Analysis (3-4, S) – May take MS&E 152 or MS&E 52
- MUSIC 220A: Fundamentals of Computer-Generated Sound (3-4, A)
- MUSIC 220B: Compositional Algorithms, Psychoacoustics, and Computational Music (3-4, W)
- MUSIC 257: Neuropasticity and Musical Gaming (3-5, S)
C. NATURE AND ENVIRONMENT APPROVED COURSES

Socio-cultural courses (formerly social science and humanities courses)
If declared after 8/31/2015, include 3 Foundational Courses (see *).

- AMSTUD 143X: Starstuff: Space and the American Imagination (5, A)
- ANTHRO 90C: Theory of Ecological and Environmental Anthropology (5, W)*
- ANTHRO 125: Language and the Environment (4-5, A)
- ANTHRO 126: Urban Culture in Global Perspective (5, A)*
- ANTHRO 160: Social and Environmental Sustainability: The Costa Rican Case (3-5, S)
- ANTHRO 162: Indigenous Peoples and Environmental Problems (3-5, S)*
- ANTHRO 166: Political Ecology of Tropical Land Use: Conservation, Natural Resource Extraction, and Agribusiness (3-5, W)
- ANTHRO 170: Australian Ecosystems: Human Dimensions and Environmental Dynamics (3, NO)
- EARTHSYS 61Q: Food and Security (3, NO)
- EARTHSYS 105: Food and Community: New Visions for a Sustainable Future (3, W)
- EARTHSYS 112: Human Society & Environmental Change [Prereq: ECON 1] (4, A)*
- EARTHSYS 121: Building a Sustainable Society: New Approaches for Integrating Human and Environmental Priorities (3, NO)
- EARTHSYS 181: Urban Agriculture in the Developing World (3-4, NO)
- EARTHSYS 184: Climate and Agriculture (3-4, NO)
- ECON 106: World Food Economy (5, S)*
- ESS 112: Human Society and Environmental Change (4, A)
- HISTORY 1C: Global History: Empires, Technology, and Modernity (3-5, S)*
- HISTORY 131: Leonardo's World: Science, Technology, and Art in the Renaissance (3-5, NO)*
- HISTORY 140: World History of Science (5, NO)*
- HISTORY 140A: Scientific Revolution (5, A)*
  or HISTORY 232F: Scientific Revolution (5, W)*
- HISTORY 203C: History of Ignorance (5, NO)
- HISTORY 203J: Water in World History (4-5, S)*
- HISTORY 207G: The Age of Discovery: Maritime Science and Empire, 1400-1850 (4-5, NO)
- HISTORY 254: Popular Culture and American Nature (5, NO)*
- HISTORY 278S: The Ethical Challenges of Climate Change (4-5, NO)*
- HUMBIO 2B: Culture, Evolution and Society (5, A)
- HUMBIO 4B: Environmental and Health Policy Analysis (5, S)
- ME 297: Forecasting for Innovators: Technology, Tools, and Social Change (3, W)
- MS&E 92Q: International Environmental Policy (3, W)
- PHIL 60: Introduction to Philosophy of Science (5, A)*
- POLI 110G: Governing the Global Economy (5, NO)
- POLI 233F: Science, Technology, and Society in the Face of the Looming Disaster (3-5, W)*
- SIW (Stanford in Washington) 116: International Environmental Policy (5, W)
- STS 140: Science, Technology and Politics (5, NO)*
- STS 190: Issues in Technology and the Environment (4, S)*
- STS 191: Introduction to Research in STS (4, W)*
- URBANST 164: Sustainable Cities (4-5, W)

Studying abroad? For approved overseas courses in this Concentration Area, see pages 14-15
TECHNICAL COURSES (formerly science and engineering courses)

- BIO 43: Plant Biology, Evolution, and Ecology [Prereq: CHEM 31X (or 31A,B), 33] (5, S)
- BIO 101: Ecology [Prereq: BIO 43] (4, A)
- BIO 144: Conservation Biology: A Latin American Perspective [Prereq: BIO 101, or BIO 43 or HUMBIO 2A] (3, S)
- BIOHOPK 172H: Marine Ecology: From Organisms to Ecosystems [Prereq: BIO Core] (5, W)
- BIOHOPK 187H: Sensory Ecology (4, W)
- CEE 64: Air Pollution and Global Warming: History, Science, and Solutions (3, W)
- CEE 70: Environmental Science and Technology (3, W/SUM)
- CEE 73: Foundations of Water Science and Engineering (3, SUM)
- CEE 100: Managing Sustainable Building Projects (4, A)
- CEE 107A & 107F (formerly CEE 173A): Understanding Energy & Understanding Energy Field Trips (3-5 + 1, A/S)
- CEE 120A: Building Information Modeling Workshop (3-4, A)
- CEE 124: Sustainable Development Studio (3-5, A/W/S)
- CEE 171: Environmental Planning Methods (3, W)
- CEE 176A: Energy Efficient Buildings (3-4, W)
- CEE 176B: Electric Power: Renewables and Efficiency (3-4, S)
- CEE 272R: Modern Power Systems Engineering (3, S)
- EARTHSYS 101: Energy and the Environment (3, W)
- EARTHSYS 102: Fundamentals of Renewable Power (3, S)
- EARTHSYS 104: The Water Course (3, NO)
- EARTHSYS 142: Remote Sensing of Land (4, W)
- EARTHSYS 155: Science of Soils (3-4, S)
- EARTHSYS 180: Principles and Practices of Sustainable Agriculture (3-4, A/S)
- ENERGY 104: Sustainable Energy for 9 Billion (3, S)
- ENERGY 120: Fundamentals of Petroleum Engineering (3, A)
- ENGR 25E: Energy: Chemical Transformations for Production, Storage, and Use (3, W)
- ENGR 30: Engineering Thermodynamics (3, A/W/S/SUM)
- MATSCI 154: Thermodynamic Evaluation of Green Energy Technologies (4, S)
- MATSCI 156: Solar Cells, Fuel Cells, and Batteries: Materials for the Energy Solution (3-4, A)
- PHYSICS 240: Introduction to the Physics of Energy (3, A)
- PHYSICS 241: Introduction to Nuclear Energy (3, W)

Studying abroad? For approved overseas courses in this Concentration Area, see pages 14-15
D. LIFE SCIENCES AND HEALTH APPROVED COURSES

Note: HUMBIO typically requires students to take the entire Core, which is HUMBIO 2A, 2B, 3A, 3B, 4A, and 4B

SOCIO-CULTURAL COURSES (formerly social science and humanities courses)
If declared after 8/31/2015, include 3 Foundational Courses (see ●).

- AMSTUD 156H: Women and Medicine in US History: Women as Patients, Healers and Doctors (5, W) *
- ANTHRO 41: Genes and Identity (3, NO) *
- ANTHRO 82: Medical Anthropology (4, A) *
- ANTHRO 138: Medical Ethics in a Global World: Examining Race, Difference and Power in the Research Enterprise (5, NO) *
- ANTHRO 154: Anthropology of Drugs: Experience, Capitalism, Modernity (5, NO) *
- ANTHRO 186: Culture and Madness: Anthropological and Psychiatric Approaches to Mental Illness (3-5, W) *
- ARTSTUDI 284: Art & Biology (4, W)
- BIOE 131: Ethics in Bioengineering (3, S)
- EDUC 120: Sociology of Science (3-4, NO) *
- EDUC 340: Psychology and American Indian Mental Health (3-5, S)
- FRENCH 219: The Renaissance Body in French Literature and Medicine (3-5, NO)
- GENE 104Q: Law and the Biosciences (3, A)
- HISTORY 41Q: Madwomen: The History of Women and Mental Illness in the U.S. (3, A) *
- HISTORY 130A: In Sickness and In Health: Medicine and Society in the United States: 1800-Present (5, A) *
- HISTORY 140: World History of Science (5, NO) *
- HISTORY 144: Women and Gender in Science, Medicine and Engineering (5, W) *
  or HISTORY 44Q: Gendered Innovations in Science, Medicine, Engineering, and Environment (4-5, W) *
- HISTORY 203C: History of Ignorance (5, NO)
- HISTORY 243C: People, Plants, and Medicine: Colonial Science and Medicine (4-5, S) *
- HISTORY 243G: Tobacco and Health in World History (4-5, NO) *
- HISTORY 264G: The Social History of Mental Illness in the United States (5, S) *
- HUMBIO 2B: Culture, Evolution, Society (5, A)
- HUMBIO 3B: Behavior, Health, and Development (5, W)
- HUMBIO 4B: Environmental and Health Policy Analysis (5, S)
- HUMBIO 122S: Social Class, Race, Ethnicity, and Health (4, W)
- HUMBIO 174: Foundations of Bioethics (3, S)
- MED 157: Foundations for Community Health Engagement (3, S)
- PHIL 60: Introduction to Philosophy of Science (5, A) *
- PHIL 167B: Philosophy, Biology, & Behavior [Prereq: 167A; or one PHIL course & a BIO course or HUMBIO core] (4, NO)
- POLISCI 216E: International History and International Relations Theory (4-5, NO)
- PSYCH 30: Introduction to Perception (3, A)
- PSYCH 75: Introduction to Cultural Psychology (5, W)
- PUBLPOL 122: Biosecurity and Bioterrorism Response (4-5, W)
- RELIGST 22: Method in the Sciences of Nature and Society (4, NO)
- STS 140: Science, Technology and Politics (5, NO) *
- STS 190: Issues in Technology and the Environment (4, S) *
- STS 191: Introduction to Research in STS (4, W) *

Studying abroad? For approved overseas courses in this Concentration Area, see pages 14-15
TECHNICAL COURSES (formerly science and engineering courses)

- BIO 41: Genetics, Biochemistry & Molecular Biology [Prereq: CHEM 31X (or 31A,B), 33] (5, A) - May take BIO 41 or HUMBIO 2A
- BIO 42: Cell Biology and Animal Physiology [Prereq: CHEM 31X (or 31A,B), 33] (5, W) - May take BIO 42 or HUMBIO 3A
- BIO 43: Plant Biology, Evolution, and Ecology [Prereq: CHEM 31X (or 31A,B), 33] (5, S)
- BIO 45: Introduction to Laboratory Research in Cell and Molecular Biology (4, A/W)
- BIO 46: Introduction to Research in Ecology and Evolutionary Biology w/ focus on Oak Regeneration (4, W)
- BIO 47: Introduction to Research in Ecology and Evolutionary Biology w/ focus on Nectar Microbes (4, S)
- BIO 109A: The Human Genome and Disease (3, W) – May take BIO 109A or 109B
- BIO 109B: The Human Genome and Disease: Genetic Diversity & Personalized Medicine (3, S) - May take BIO 109A or 109B
- BIO 144: Conservation Biology: A Latin American Perspective [Prereqs: BIO 101, or BIO 43 or HUMBIO 2A] (3, S)
- BIO 150: Human Behavioral Biology (5, NO)
- BIOE 44: Fundamentals for Engineering Biology Lab (4, A/S)
- BIOE 80: Introduction to Bioengineering (4, S)
- BIOE 101: Systems Biology [Prereq: CME 102; BIO 41, BIO 42] (3, A)
- BIOE 103: Systems Physiology & Design [Prereq: CME 102, PHYSICS 41, BIO 41, 42] (4, S)
- BIOE 115 (formerly BIOE 45): Computational Modeling for Microbial Communities (4, NO)
- CHEM 31A: Chemical Principles I (5, A/SUM)
- CHEM 31B: Chemical Principles II [Prereq: CHEM 31A] (5, W/SUM)
- CHEM 31X: Chemical Principles Accelerated [Prereq: AP CHEM] (5, A)
- CHEM 33: Structure and Reactivity [Prereq: CHEM 31A, 31B (or 31x)] (5, W/S)
- CHEM 130: Organic Chemistry Laboratory [Prereq: CHEM 35; CHEM 36] [Corequisite: CHEM 131] (3, A/W)
- CHEM 171: Physical Chemistry I [Prereqs: CHEM 33, PHYS 41, CME 100 or MATH 51] (4, S)
- COMPMD 87Q: Laboratory Mouse in Biomedical Research (3, A)
- EE 102A: Signal Processing and Linear Systems I [Prereq: MATH 53 or CME 102] (4, W)
- EE 102B: Signal Processing and Linear Systems II [Prereq: EE102A] (4, S)
- EE 169: Introduction to Bioimaging [Prereq: EE 102A, EE 102B] (3, NO)
- HUMBIO 2A: Genetics, Evolution and Ecology (5, A) - May take HUMBIO 2A or BIO 41
- HUMBIO 3A: Cell and Developmental Biology (5, W) - May take HUMBIO 3A or BIO 42
- HUMBIO 4A: The Human Organism (5, S)
- HUMBIO 145L: The Biology and Evolution of Language (4-5, W)
- HUMBIO 167: The Art of Vision (3, W)

Studying abroad? For approved overseas courses in this Concentration Area, see pages 14-15
E. POLITICS AND POLICY APPROVED COURSES

SOCIO-CULTURAL COURSES (formerly social science and humanities courses)
If declared after 8/31/2015, include 3 Foundational Courses (see ●).

- AMSTUD 143X: Starstuff: Space and the American Imagination (5, A)
- ANTHRO 166: Political Ecology of Tropical Land Use: Conservation, Natural Resource Extraction, and Agribusiness (3-5, W)
- COMM 133: Need to Know: The Tension between a Free Press and National Security Decision Making (4-5, S)
- COMPLIT 271A: Futurity: Why the Past Matters (3-5, NO) ●
- CS 181: Computers, Ethics and Public Policy [Prereq: CS 106B or CS 106X] (4, W/S)
- EARTHSYS 61Q: Food and Security (3, NO)
- ECON 106: World Food Economy (5, S) ●
- EDUC 120: Sociology of Science (3-4, NO) ●
- ENGLISH 184C: Data and Knowledge in the Humanities (5, S) ●
- ENGR 129: The Internet in Global Context (4, NO)
- ESS 112: Human Society and Environmental Change (4, A)
- FRENCH 122: Nation in Motion: Film, Race and Immigration in Contemporary French Cinema (3-5, A)
- GERMAN 132: Dynasties, Dictators, Democrats: History and Politics in Germany (3-5, A)
- GERMAN 264: Post-Cold War German Foreign Policy (3-5, NO)
- HISTORY 1C: Global History: The Modern Age (3-5, S) ●
- HISTORY 102: The History of the International System (5, W)
- HISTORY 103F: The Changing Face of War: Introduction to Military History (5, A)
- HISTORY 140: World History of Science (5, NO) ●
- HISTORY 203C: History of Ignorance (5, NO)
- HISTORY 203J: Water in World History (4-5, S) ●
- HISTORY 204D: Advanced Topics in Agnotology (4-5, NO)
- HISTORY 207G: The Age of Discovery: Maritime Science and Empire, 1400-1850 (4-5, NO)
- HISTORY 235: The Renaissance of War: Politics, Technology, and War in Late Medieval and Renaissance Italy (5, NO)
- HISTORY 261G: Presidents and Foreign Policy in Modern History (5, S)
- HUMBIO 173: Science, Innovation, and the Law (5, NO) ●
- INTNLREL 140A: International Law and International Relations (5, A/SUM)
- INTNLREL 140C: The U.S., U.N. Peacekeeping, and Humanitarian War (5, A)
- INTNLREL 180A: Transitional Justice, Human Rights, and International Criminal Tribunals (3-5, S)
- IPS 219: Intelligence and National Security (3, W)
- MS&E 193: Technology and National Security (3, A) ●
- MS&E 197 (formerly STS 110): Ethics, Technology, and Public Policy (5, NO) ●
- POLISCI 110G: Governing the Global Economy (5, NO)
- POLISCI 110Y: War and Peace in American Foreign Policy (5, NO)
- POLISCI 114D: Democracy, Development, and the Rule of Law (5, A)
- POLISCI 116: The International History of Nuclear Weapons (5, S)
- POLISCI 122: Introduction to American Law (3-5, A)
- POLISCI 123 (formerly POLISCI 2): Politics and Public Policy (4-5, W)
- POLISCI 124L: The Psychology of Communication About Politics in America (4-5, S)
- POLISCI 150A: Data Science for Politics (5, A)
- POLISCI 214R: Challenges and Dilemmas in American Foreign Policy (5, W)
- POLISCI 216E: International History & International Relations Theory (4-5, W)
- POLISCI 233F: Science, Technology, and Society in the Face of the Looming Disaster (3-5, W) ●
- PUBBLPOL 122: Biosecurity and Bioterrorism Response (4-5, W)
- PUBBLPOL 353: Science and Technology Policy (3-4, NO) ●
- STS 140: Science, Technology and Politics (5, NO) ●
- STS 190: Issues in Technology and the Environment (4, S) ●
- STS 191: Introduction to Research in STS (4, W) ●

Studying abroad? For approved overseas courses in this Concentration Area, see pages 14-15
E. POLITICS AND POLICY

(Continued)

TECHNICAL COURSES (formerly science and engineering courses)

- CEE 171: Environmental Planning Methods [Prereq: MATH 51] (3, W)
- CHEM 31A: Chemical Principles I (5, A/SUM)
- CHEM 31B: Chemical Principles II [Prereq: CHEM 31A] (5, W/SUM)
- CHEM 31X: Chemical Principles Accelerated [Prereq: AP CHEM] (5, A)
- CHEM 33: Structure and Reactivity [Prereq: CHEM 31A, 31B (or 31x)] (5, W/S)
- CS 105: Introduction to Computers (3-5, A)
- CS 106A: Programming Methodology (3-5, A/W/S/SUM)
- CS 106B: Programming Abstractions [Prereq: CS 106A] (3-5, A/W/S/SUM)
- CS 106X: Programming Abstractions (Accelerated) [Prereq: CS 106A] (3-5, A/W)
- CS 107: Computer Organization and Systems [Prereq: CS 106B or CS 106X] (3-5, A/W/S)
- CS 108: Object-Oriented Systems Design (3-4, A/W)
- CS 255: Introduction to Cryptography [Prereq: Basic probability theory] (3, W)
- MS&E 93Q: Nuclear Weapons, Energy, Proliferation and Terrorism (3, S)
- MS&E 107: Interactive Management Science (3, A)
- PHYSICS 41 & 42: Mechanics & Classical Mechanics Lab [Prereq: PHYSICS 19, MATH 19 or 41] (4 + 1, W)
- PHYSICS 43: Electricity and Magnetism [Prereq: PHYSICS 41, MATH 42 or 51 or CME 100] (4, S)
- PHYSICS 240: Introduction to the Physics of Energy (3, A)
- PHYSICS 241: Introduction to Nuclear Energy (3, W)

Studying abroad? For approved overseas courses in this Concentration Area, see pages 14-15
A. COMMUNICATION AND MEDIA CONCENTRATION

SOCIO-CULTURAL COURSES
- OSPBEIJ 17: Chinese Film Studies (4, A)
- OSPBEIJ 42: Chinese Media Studies (4, S)
- OSPFLOR 44: Galileo: Genius, Innovation and the Scientific Revolution (5, NO)
- OSPFLOR 48: Sharing Beauty in Florence: Collectors, Collections and the Shaping of the Western Museum Tradition (4, W)
- OSPFLOR 49: On-Screen Battles: Filmic Portrayals of Fascism and World War II (5, W)
- OSPMADRID 45: Women in Art: Case Study in the Madrid Museums (4, W)
- OSPMADRID 71: Sociology of Communication (5, A)
- OSPOXFRD 57: The Rise of the Woman Writer 1660-1860 (5, W)
- OSPPARIS 30: The Avant Garde in France through Literature, Art and Theater (4, A)

TECHNICAL COURSES
- OSPCPTWN 67: Lessons from ICT Usage in Developing Countries (3, NO)

B. INNOVATION AND ORGANIZATION CONCENTRATION

SOCIO-CULTURAL COURSES
- OSPBER 115X: German Economy: Past and Present (4-5, A)
- OSPBER 126X: A People’s Union? Money, Markets, and Identity in the EU (4-5, S)
- OSPBER 161X: The German Economy in the Age of Globalization (4-5, S)
- OSPCPTWN 36: The Archaeology of Southern African Hunter Gatherers (4, S)
- OSPFLOR 17: The Evolution of Modern Italian Design (4, NO)
- OSPFLOR 20: Design Driven Innovation: Italian Excellence (4, NO)
- OSPFLOR 22: The Italian Way to Car Design (5, NO)
- OSPFLOR 25: Italian Food: A Cultural History (5, NO)
- OSPFLOR 41: The Florentine Sketchbook: A Visual Arts Practicum (4, A)
- OSPFLOR 44: Galileo: Genius, Innovation and the Scientific Revolution (5, NO)
- OSPFLOR 48: Sharing Beauty in Florence: Collectors, Collections and the Shaping of the Western Museum Tradition (4, W)
- OSPFLOR 58: Space as History: Social Vision and Urban Change (4, S)
- OSPFLOR 115Y: Building the Cathedral and the Town Hall: Constructing and Deconstructing Symbols of a Civilization (4, A)
- OSPISTAN 63: Soundscape Studies: Listening to Istanbul (4, NO)
- OSPMADRID 45: Women in Art: Case Study in the Madrid Museums (4, W)
- OSPMADRID 71: Sociology of Communication (5, A)
- OSPKYOTO 38: From the Chashitsu to Muji- A Creative Introduction to the Roots of Contemporary Japanese Design (5, S)
- OSPOXFRD 45: British Economic Policy since World War II (5, A)
- OSPPARIS 30: The Avant Garde in France through Literature, Art, and Theater (4, A)
- OSPPARIS 44: EAP: Analytical Drawing and Graphic Art (2, A/W/S)
- OSPPARIS 72: The Ceilings of Paris (4, A)
- OSPSANTG 29: Sustainable Cities: Comparative Transportation Systems in Latin America (4-5, S)
- OSPSANTG 71: Santiago: Urban Planning, Public Policy, and the Built Environment (4-5, A)
- OSPSANTG 130X: The Chilean Economy in Comparative Perspective (5, A)

TECHNICAL COURSES
- OSPCPTWN 67: Lessons from ICT Usage in Developing Countries (3, NO)
- OSPKYOTO 38: From the Chashitsu to Muji- A Creative Introduction to the Roots of Contemporary Japanese Design (5, S)
C. NATURE AND ENVIRONMENT CONCENTRATION

SOCIO-CULTURAL COURSES

- OSPBER 115X: The German Economy: Past and Present (4-5, A)
- OSPCPTWN 36: The Archaeology of Southern African Hunter Gatherers (4, S)
- OSPFLOR 44: Galileo: Genius, Innovation and the Scientific Revolution (5, NO)
- OSPKYOTO 45: Japan’s Energy-Environment Conundrum (4, NO)
- OSPPARIS 91: Globalization and Its Effect on France and the European Union (5, A)
- OSPSANTG 29: Sustainable Cities: Comparative Transportation Systems in Latin America (4-5, S)
- OSPSANTG 71: Santiago: Urban Planning, Public Policy, and the Built Environment (4-5, A)

TECHNICAL COURSES

- OSPAUSTL 10: Coral Reef Ecosystems (3, A)
- OSPAUSTL 25: Freshwater Systems (3, A)
- OSPAUSTL 30: Coastal Forest Ecosystems (3, A)
- OSPSANTG 31: The Chilean Energy System: 30 Years of Market Reforms (4-5, NO)
- OSPSANTG 85: Marine Ecology of Chile and the South Pacific (5, S)

D. LIFE SCIENCES AND HEALTH CONCENTRATION

SOCIO-CULTURAL COURSES

- OSPFLOR 44: Galileo: Genius, Innovation and the Scientific Revolution (5, NO)
- OSPMADRD 57: Health Care: A Contrastive Analysis between Spain and U.S. (4, S)
- OSPMADRD 72: Issues in Bioethics Across Cultures (4, W)
- OSPOXFRD 27: Medical Ethics through Literature and Film (4, NO)
- OSPPARIS 98: Global Health Systems: the Future (5, A)
- OSPPARIS 153X: Health Systems and Health Insurance: France and the U.S.—a Comparison across Space and Time (5, NO)

TECHNICAL COURSES

- OSPAUSTL 10: Coral Reef Ecosystems (3, A)
- OSPAUSTL 25: Freshwater Systems (3, A)
- OSPAUSTL 30: Coastal Forest Ecosystems (3, A)
- OSPFLOR 86: Stem Cells in Human Development and Regenerative Medicine (4-5, NO)
- OSPSANTG 85: Marine Ecology of Chile and the South Pacific (5, S)

E. POLITICS AND POLICY CONCENTRATION

SOCIO-CULTURAL COURSES

- OSPCPTWN 43: Public and Community Health in Sub-Saharan Africa (4, NO)
- OSPFLOR 49: On-Screen Battles: Filmic Portrayals of Fascism and World War II (5, W)
- OSPISTAN 65: Comparative Political Economy of Emerging Powers (4, NO)
- OSPKYOTO 45: Japan’s Energy-Environment Conundrum (4, NO)
- OSPMADRD 57: Health Care: A Contrastive Analysis between Spain and the U.S. (4, S)
- OSPPARIS 91: Globalization and Its Effect on France and the European Union (5, A)
- OSPPARIS 153X: Health Systems and Health Insurance: France and the U.S.—a Comparison across Space and Time (5, NO)
- OSPSANTG 71: Santiago: Urban Planning, Public Policy, and the Built Environment (4-5, A)

TECHNICAL COURSES

- OSPSANTG 31: The Chilean Energy System: 30 Years of Market Reforms (4-5, NO)