Science and Technology Studies (STS) is an interdisciplinary program concerned with science and technology and their relationship to society. The community of scholars in the Williams STS program apply methods from diverse disciplines. They seek to illuminate the historical, social, cultural, ethical, and political dimensions of science and technology. By bridging humanities, social sciences, science, and technology, our program seeks to build relationships across campus.

The STS program at Williams takes a broad umbrella approach to the discipline. Topics include: sociology of knowledge production; philosophy of science; history of science and technology; the economics of research and development; science and public policy; technology and the environment; scientometrics; interactions between humans and technology; science fiction and other artistic depictions of science and technology; boundaries between pseudo-science, religion, and science; and the broader ethical issues evoked by science and technology.

Science and Technology Studies concentrators must complete a total of six courses. Five of these must have the STS prefix. Students must take: Introduction to STS; Senior Seminar; and three electives, of which at most two can originate in the same department. In addition, Science and Technology Studies concentrators must complete one course with a laboratory or field work component in natural, social, or computer science; this course may also satisfy one of the divisional distribution requirements.

Students may petition the Chair for recognition of a course as an STS course even if it is not cross-listed in STS. The petitions will be approved or denied on a case-by-case basis.

The program is administered by a chair and an advisory committee of faculty who teach in the program. Students who wish to enroll normally register with the chair by the fall of their junior year.

STUDY ABROAD

FAQ

Students MUST contact departments/programs BEFORE assuming study away credit will be granted toward the major or concentration.

Can your department or program typically pre-approve courses for major/concentration credit?

Yes, in some cases, if appropriate course information is available in advance (e.g. syllabi and/or course descriptions), though students should be sure to contact the department.

What criteria will typically be used/required to determine whether a student may receive major/concentration credit for a course taken while on study away?

Complete syllabus and course description, including readings/assignments.

Does your department/program place restrictions on the number of major/concentration credits that a student might earn through study away?

No.

Does your department/program place restrictions on the types of courses that can be awarded credit towards your major?

No.

Are there specific major requirements that cannot be fulfilled while on study away?

No.

Are there specific major requirements in your department/program that students should be particularly aware of when weighing study away options? (Some examples might include a required course that is always taught in one semester, laboratory requirements.)

Yes. Be sure to check record of enrollment in classes with laboratory of fieldwork components to satisfy program.

Give examples in which students thought or assumed that courses taken away would count toward the major or concentration and then learned they wouldn't:

None to date.
STS 101  (S)  Science, Technology, and Human Values

Cross-listings:  HSCI 101  STS 101  SOC 201

Primary Cross-listing

This course offers an introduction to science and technology studies, or STS. A radically interdisciplinary field of inquiry, the roots of STS stretch through the philosophy, history, and sociology/anthropology of science and technology. Students will become acquainted with major STS schools, methodological strategies and research trajectories through intensive reading and analysis of classical and contemporary works in the field. Considerable attention will be devoted to exploring the nature of science and technology, their relationships to and interactions with one another, society and the natural world, and the influences these interactions exert in shaping what humans value. A fundamental goal of the course is to cultivate awareness and understanding of the social organization of technology and scientific knowledge production, and the technoscientific structuring of modern social life broadly. The course as such is aimed at attracting from all divisions those students who are intellectually adventurous and inclined to think critically about the place and prominence of science and technology in the modern world.

Class Format: seminar

Requirements/Evaluation:  two or three short exercises, two papers (3-5 pages and 5-7 pages), and two hour exams

Prerequisites:  none

Enrollment Limit:  25

Enrollment Preferences:  first-years and sophomores

Expected Class Size:  20

Grading:  yes pass/fail option,  yes fifth course option

Distributions:  (D2)

This course is cross-listed and the prefixes carry the following divisional credit:

HSCI 101 (D2) STS 101 (D2) SOC 201 (D2)

Spring 2020

SEM Section: 01   MWF 8:30 am - 9:45 am   Grant Shoffstall

STS 106  (F)  Being Human in STEM  (DPE)

Cross-listings:  GEOS 106  PHYS 106  STS 106

Secondary Cross-listing

This course combines academic inquiry and community engagement to investigate the themes of diversity and social climate within STEM (science, technology, engineering and mathematics) disciplines. Students will examine how diverse identities including but not limited to gender, race, disability, sexuality, national origin, socioeconomic status, religion, and ethnicity shape the STEM experience both at Williams and nationally. We will ground our understanding through critical reading of primary scholarly research on topics such as implicit bias, identity threat, and effects of team diversity on excellence. From there, we will execute small group projects. Students will design, execute, and evaluate interventions that relate to the course goals and that have direct relevance to Williams students, faculty, and staff. For example, a student group could implement a survey of minoritized STEM students, or create a qualitative interview-based assessment of how socioeconomic status impacts students' abilities to participate in STEM fields. Course work includes weekly readings, reflective/opinion writing, in class discussion, and the development and presentation of a group project.

Class Format: class discussions, group project work (out of class time required)

Requirements/Evaluation:  short response papers, class discussion participation, leading class discussions, group work, and final project

Enrollment Limit:  15

Enrollment Preferences:  DIV III majors; statement of interest may be requested

Expected Class Size:  15

Grading:  no pass/fail option,  yes fifth course option

Unit Notes:  does not count towards GEOS or PHYS major credit

Distributions:  (D2)  (DPE)

This course is cross-listed and the prefixes carry the following divisional credit:
**Difference, Power, and Equity Notes:** This course explicitly addresses the intersection of marginalized identities and the STEM experience. Students will learn how to critically address how issues such as gender, race, ethnicity, and disability impact participation in and the experience of STEM fields. For example, students will read and critique literature documenting bias in STEM fields, and will also learn about and create interventions that can address these biases.

Fall 2019

SEM Section: 01  W 1:10 pm - 3:50 pm    Savan Kharel, Phoebe A. Cohen

**STS 115 AIDS: The Disease and Search for a Cure**

Since the discovery of the human immunodeficiency virus (HIV-1) in 1983, modern techniques of molecular biology have revealed much about its structure and life cycle. The intensity of the scientific investigation directed at HIV-1 is unprecedented in history. We now know more about this virus than any other known pathogen. However, the early optimism concerning the prospects for an effective AIDS vaccine has now waned and HIV strains that are resistant to drug therapies are common. We are now three decades into the AIDS pandemic and the World Health Organization estimates that there are more than 34 million HIV-infected persons worldwide. After an introduction to chemical structure, we examine the molecular biology of the HIV virus, the molecular targets of anti-HIV drugs, and the prospects for a cure. We look at how HIV-1 interacts with the human immune system and discuss prospects for developing an effective HIV vaccine.

**Class Format:** three hours per week

**Requirements/Evaluation:** problem sets, a midterm, quizzes, a final exam, and a presentation/discussion

**Prerequisites:** none; designed for the non-science major who does not intend to pursue a career in the natural sciences

**Enrollment Limit:** 45

**Expected Class Size:** 45

**Grading:**

**Distributions:** (D3)

**Attributes:** PHLH Biomedical Determinants of Health

Not offered current academic year

**STS 135 (S) Politics After the Apocalypse**

**Cross-listings:** STS 135  PSCI 135

**Secondary Cross-listing**

The zombies are coming! Climate change will destroy us! Bird-flu pandemic! To our horror and delight, reminders are everywhere that the end is near. Some of these projected apocalypses are alarmist, some fanciful...and others all too realistic. What shape will politics take after the apocalypse? What aspects of politics will endure the ravages of fire or pestilence? What new political realities might emerge on ground cleared by disaster? And what does it say about politics today that we are so eager to consume stories of states falling and bands of survivors scraping together a nasty, brutish and short existence? In this class, we reconsider what politics is and should be by contemplating accounts of its destruction and rebirth in television, film, literature, activism, social science, and critical theory. We will approach these sources as analogous to political theory's classic thought experiment of the "state of nature" and social contract. We will explore family resemblances between apocalyptic narratives and key concepts in political theory: the state of exception, (post)millennialism, and anarchy. And we will consider what it suggests about our time that we are so eager to imagine ourselves at the beginning of the end.

**Class Format:** seminar

**Requirements/Evaluation:** "Close reading" assignment of 3-5 pages, two 5- to 7-page papers, one short story (12-20 pages and including an explanatory cover letter), and class participation

**Prerequisites:** first- or second-year students, or permission of instructor

**Enrollment Limit:** 20

**Enrollment Preferences:** first-year students

**Expected Class Size:** 20

**Grading:** yes pass/fail option, yes fifth course option
Distributions: (D2)
This course is cross-listed and the prefixes carry the following divisional credit:

STS 135 (D2) PSCI 135 (D2)

Attributes: PSCI Political Theory Courses

Spring 2020
SEM Section: 01  TR 11:20 am - 12:35 pm  Laura D. Ephraim

STS 142 (F) AlterNatives: Indigenous Futurism and Science Fiction (DPE)
Cross-listings: AMST 142 STS 142

Secondary Cross-listing

Indigenous people occupy a paradoxical position in time. On one hand, as survivors of genocide and occupation, they are already post-apocalyptic, occupying what many Indigenous thinkers argue is "our ancestor's dystopia." On the other hand, Indigenous people are relegated to the past in settler and colonial discourses, which, in relying heavily on notions of contact, authenticity, and vanishing, preclude Indigenous peoples from not only futurity, but from modernity and associated visions of science and technology too. This tutorial explores how Native science fiction imagines and enacts futurity from this paradoxical Indigenous temporality. Looking across numerous national and transnational Indigenous contexts, in addition to different kinds of media, including short stories, novels, visual art, video games, films, and online platforms like second life, this tutorial foregrounds the ways in which science fiction functions as a mode of Indigenous theory, knowledge production, and claiming of not only the future but of the past and present, as well. Pairing media readings with works in science fiction and Indigenous studies, we will explore the role of indigeneity in the founding and tropes of European and settler science fiction, Native "slipstream" and eco SF, post-post-apocalyptic thinking, space travel and frontiers, Native pessimism, and Indigenous technologies and epistemologies cast into the future. We will pay careful attention to the political stakes of these narratives and expression for Indigenous sovereignty and self-determination.

Requirements/Evaluation: attendance and participation, weekly 2- to 4-page written responses to class readings, short fiction prompts, and your partner's writing

Prerequisites: permission of instructor

Enrollment Limit: 10

Enrollment Preferences: American Studies majors and Science and Technology Studies concentrators

Expected Class Size: 10

Grading: no pass/fail option, no fifth course option

Distributions: (D2) (DPE)
This course is cross-listed and the prefixes carry the following divisional credit:

AMST 142 (D2) STS 142 (D2)

Difference, Power, and Equity Notes: This course will underscore the ways in which structures like race, gender, sexuality, and colonialism are deeply imbedded in every form of cultural production, and will highlight how imagining the future otherwise has real impact and import in the lives and political existence colonized people.

Attributes: AMST Arts in Context Electives AMST Comp Studies in Race, Ethnicity, Diaspora

Fall 2019

TUT Section: T1  TBA  Eli Nelson

STS 153 (S) Androids, Cyborgs, Selves (WS)
Cross-listings: STS 153 ENGL 153

Secondary Cross-listing

In this expository writing course, we will analyze and argue about how near-human and partly human bodies appear in fiction and film. When do these bodies improve the spaces in which they appear? When do they threaten them? How are they gendered, how are they raced, and why? What do they desire? Authors in different cultural and technological contexts have imagined not-quite-human selves for different ends and in different ways. Together we will develop our ideas on these topics in clear, strong prose. We will also ask how artists have cast human identities into foreign materials...
and media, and study the distortions and revelations that result. During museum visits at WCMA, students will use examples of self-portraiture, electrified bodies, and aspirational bodies to explore the representation, imitation, and abstraction of selves. Because this is an expository writing seminar, we will spend half or more of our class time discussing and practicing writing skills.

**Class Format:** seminar

**Requirements/Evaluation:** five response papers (500 words); four essays (1200-1500 words, each in two drafts); class participation

**Prerequisites:** none

**Enrollment Limit:** 12

**Expected Class Size:** 12

**Grading:** no pass/fail option, no fifth course option

**Distributions:** (D2) (WS)

This course is cross-listed and the prefixes carry the following divisional credit:

STS 153 (D2) ENGL 153 (D1)

**Writing Skills Notes:** This expository writing course is dedicated to facilitating real improvement in students' written work. Students write five response papers and four five-page essays (in two drafts) over the course of the semester, receiving substantial instructor feedback on all. Students will practice: drafting, revising, and responding to critique; writing appropriately for given occasions and audiences; grounding their writing in close, analytical reading; and acknowledging sources.

Spring 2020

SEM Section: 01 TR 8:30 am - 9:45 am Ezra D. Feldman

**STS 211 (F) Scientific Selves: Medicine, Technology, and Identity in Early Modern France**

**Cross-listings:** RLFR 210 STS 211

**Secondary Cross-listing**

The early modern period has long been associated with scientific discovery and shifting ideology in France. From Copernicus on, thinkers such as René Descartes, Blaise Pascal, and Antoine Lavoisier helped advance the Scientific Revolution, which led to medical and technological breakthroughs, as well as important advances in our understanding of the world and our solar system. This course examines the role that France played in pursuing such discoveries, as well as the ways newfound knowledge impacted notions of belonging and alterity. How did the Scientific Revolution and French colonization lead to the creation of social, cultural, and medical "others"? How did scientific discourse permeate verbal and visual expression and depict those who did not fit into normative paradigms of gender, sexuality, ability, ethnicity, belief, and culture? What avenues for self-expression and definition were available to those whom society excluded? What parallels can we see with twenty-first-century questions of political activism, social justice, sciences, and technology? To explore these questions, we will analyze literary texts, visual representations, and historical documents, such as medical treatises, scientific diagrams, and texts on new technologies. *Conducted in French.*

**Requirements/Evaluation:** active class participation, written reflections, quizzes, mid-semester presentation, and final paper

**Prerequisites:** strong performance in RLFR 105; RLFR 106; another RLFR 200-level course; placement exam; or permission of instructor

**Enrollment Limit:** 20

**Enrollment Preferences:** French Majors and certificate students

**Expected Class Size:** 20

**Grading:** yes pass/fail option, yes fifth course option

**Distributions:** (D2)

This course is cross-listed and the prefixes carry the following divisional credit:

RLFR 210 (D1) STS 211 (D2)

Fall 2019

SEM Section: 01 MR 1:10 pm - 2:25 pm Theresa Brock

**STS 228 (F) Feminist Bioethics** (WS)
Secondary Cross-listing

In this course we will explore the ways in which feminist approaches to moral thinking have influenced both the methodology and the content of contemporary bioethics. The first portion of the course will address the emergence of the "Ethics of Care," critically assessing its origins in feminist theory, its development within the context of the caring professions, and its potential as a general approach to bioethical reasoning. The second portion of the course will use feminist philosophy to inform our understanding of the ways in which gender structures the individual's interactions with the health care system. To do this we will explore topics that might traditionally be considered "women's issues" in healthcare, such as medicine and body image (e.g., cosmetic surgery, eating disorders), reproductive and genetic technologies, and research on women and their health care needs. In addition we'll also look at feminist analyses of topics that traditionally have not been regarded as "gendered," such as resource allocation and end of life issues.

Class Format: discussion

Requirements/Evaluation: active participation in class discussions; periodic short papers (2-3 pages); midterm and final paper (5-7 and 7-10 pages, respectively); and one oral presentation

Prerequisites: none, although previous coursework in WGSS is desirable

Enrollment Limit: 19

Enrollment Preferences: prospective and declared majors or concentrators in PHIL, WGSS, STS, and PHLH, especially those who need the course to satisfy major or concentration requirements

Expected Class Size: 19

Grading: yes pass/fail option, yes fifth course option

Unit Notes: meets Contemporary Value Theory requirement only if registration is under PHIL

Distributions: (D2) (WS)

This course is cross-listed and the prefixes carry the following divisional credit:

WGSS 228 (D2) STS 228 (D2) PHIL 228 (D2)

Writing Skills Notes: Students will write periodic short papers (2-3 pages each), a midterm paper (5-7 pages) and a final paper (7-10 pages). Short papers focus on concepts, arguments, and writing skills needed in the midterm and final papers, in which students are expected to describe and evaluate arguments from assigned readings, and to present clear and effective arguments in support of their own ethical positions. Students receive feedback on all papers and have the opportunity to revise midterm and final papers.

Attributes: AMST Critical and Cultural Theory Electives JLST Interdepartmental Electives PHIL Contemporary Value Theory Courses PHLH Bioethics + Interpretations of Health

Fall 2019
LEC Section: 01 TF 2:35 pm - 3:50 pm Julie A. Pedroni

STS 229 (F) The Panopticon: Surveillance, Power, and Inequality (DPE)

Secondary Cross-listing

Surveillance is built into the very fabric of modern life. From CCTV cameras, to supermarket loyalty cards, to the massive gathering of personal data on social media sites, people participate in today's "surveillance societies" just by doing everyday activities. This course uses the metaphor of the "Panopticon" as a doorway to engagement with traditional and new forms of surveillance. First described by philosopher and social theorist Jeremy Bentham, the Panopticon is a physical structure that enables one observer to see all inhabitants without those inhabitants knowing if they are being observed. In Discipline and Punish, Michel Foucault famously expanded thinking on the Panopticon as a metaphor for the "disciplinary" power that lies at the heart of inequality in modern society. Since Bentham and Foucault's time, however, surveillance technologies have changed significantly. To what extent does the concept of the Panopticon give us purchase on today's surveillance societies? How does watching people with new digital and algorithmic surveillance technologies shape the exercise of power and, in turn, (re)produce forms of inequality? Are these technologies always bad? Can they be used for good? Topics include: the historical origins and expansion of surveillance in modern societies, the emerging total surveillance state in Baltimore City, the U.S. military drone program, surveillance in the workplace, and whether social media is turning us all into self-surveillance addicts.

Requirements/Evaluation: discussion participation, six reading responses (1- to 2-page papers), Facebook data essay (3-5 pages), final paper (8-10
Prerequisites: none
Enrollment Limit: 20
Enrollment Preferences: Anthropology and Sociology majors
Expected Class Size: 10
Grading: no pass/fail option, no fifth course option
Distributions: (D2) (DPE)

This course is cross-listed and the prefixes carry the following divisional credit:
SOC 228 (D2) STS 229 (D2)

Difference, Power, and Equity Notes: This course explores how power is distributed unequally through the mechanism of surveillance technologies, particularly in regard to racial and class differences. Among other topics, it will consider the concrete case of surveillance in Baltimore City and the question of if and when surveillance is appropriate there given the city’s current crisis of gun murders. Students will discuss whether and how to conduct surveillance in a context shaped by deep racial segregation and class inequality.

Fall 2019
SEM Section: 01    MR 2:35 pm - 3:50 pm     Ben Snyder

STS 231 (F) The African Anthropocene (DPE)
Cross-listings: STS 231  AFR 231  ENVI 231
Secondary Cross-listing

Despite its low contributions to global carbon emissions, the continent of Africa is predicted to experience some of the worst effects of climate change. This interdisciplinary course investigates the causes and consequences of this troubling contradiction. It positions the African continent as an important site for understanding how legacies of empire, racial and gendered inequality, resource extraction, and capital accumulation impact contemporary global environmental politics. Students will engage theoretical texts, reports from international organizations, films, poetry, novels, and web-based content. Topics include: humanism/post-humanism; migration and displacement; representations of conflict; and sustainable development.

Class Format: non-traditional technologies, web-streams, social media (Tumblr/Twitter)
Requirements/Evaluation: assignments include: short written commentaries, current event analysis, presentations, and a final analytical essay
Prerequisites: none
Enrollment Limit: 19
Enrollment Preferences: Environmental Studies majors and concentrators; juniors and seniors
Expected Class Size: 19
Grading: no pass/fail option, yes fifth course option
Distributions: (D2) (DPE)

This course is cross-listed and the prefixes carry the following divisional credit:
STS 231 (D2) AFR 231 (D2) ENVI 231 (D2)

Difference, Power, and Equity Notes: The African Anthropocene considers inequity in environmental politics from the vantage of the African continent. Through selected readings and classroom discussions students will tackle questions of power, racial and gendered difference, empire, and economic stratification. The course contributes to the DPE requirement by helping students to develop skills to better analyze abiding challenges in global society.

Fall 2019
SEM Section: 01    TR 8:30 am - 9:45 am     Brittany Meché

STS 239 (S) The Ethics of Artificial Intelligence
Cross-listings: STS 239  PHIL 239
Secondary Cross-listing
We will someday live alongside artificially intelligent beings who equal or exceed us. Commentators ranging from technology magnates to physics geniuses—not to mention decades of apocalyptic science fiction—have urged that that future is nothing short of an existential threat to human beings. Whether this is hyperbole or wise prognostication, it cannot be denied that the rise of AI will be a tectonic shift for culture, technology, and our fundamental sense of ourselves. When AI is fully realized, it is likely to be amongst the most important things to happen to our species. Some challenges we face are broad and about the future, though perhaps not the far future. How can we ensure that AI’s will act morally? Is a world with AI’s overall better or worse for us? How do we create legal and policy frameworks that cover a new kind of thinking being? If they are conscious, will AI’s have dignity and rights? Other questions are pressing and immediate: Artificial intelligence techniques are used today to help decide whether someone gets a bank loan, is eligible to be released on bail, or is in need of particular medical treatment. And right now there are autonomous vehicles deciding how to behave in traffic, and autonomous weapons capable of delivering lethal force. Is it moral for us to pass along these sorts of decisions to AI’s? What if they are biased, unbeknownst to us? What if they are more fair? In this course we will engage ethical questions surrounding the seeming inevitability of AI.

**Class Format:** mixture of lectures and discussion

**Requirements/Evaluation:** four short (3- to 4-page) writing assignments and a final essay (8-10 pages)

**Prerequisites:** none

**Enrollment Limit:** 25

**Enrollment Preferences:** CSCI or PHIL majors or STS or COGS concentrators

**Expected Class Size:** 25

**Grading:** no pass/fail option, yes fifth course option

**Distributions:** (D2)

This course is cross-listed and the prefixes carry the following divisional credit:

STS 239 (D2) PHIL 239 (D2)

**Attributes:** PHIL Contemporary Value Theory Courses

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### STS 250 (S) Environmental Justice (DPE)

**Cross-listings:** ENVI 250 STS 250

**Secondary Cross-listing**

How are local and global environmental problems distributed unevenly according to race, gender, and class? What are the historical, social and economic structures that create unequal exposures to environmental risks and benefits? And how does inequity shape the construction and distribution of environmental knowledge? These are some of the questions we will take up in this course, which will be reading and discussion intensive. Through readings, discussions, and case studies, we will explore EJ in both senses. Potential topics include: toxics exposure, food justice, urban planning, e-waste, unnatural hazards, nuclearism in the U.S. West, natural resources and war, and climate refugees. Occasionally, community leaders, organizers, academics, and government officials will join the class to discuss current issues.

**Class Format:** seminar

**Requirements/Evaluation:** several short essays, final essay

**Prerequisites:** ENVI101 or permission of the instructor

**Enrollment Limit:** 12

**Enrollment Preferences:** Environmental Studies concentrators

**Expected Class Size:** 10

**Grading:** no pass/fail option, no fifth course option

**Distributions:** (D2) (DPE)

This course is cross-listed and the prefixes carry the following divisional credit:

ENVI 250 (D2) STS 250 (D2)

**Difference, Power, and Equity Notes:** This course will explore how unequal power leads to environmental injustice. Specifically, we will analyze how
local and global environmental problems are distributed unevenly according to race, gender, and class. This is a service-based learning course, and students will hone skills to address environmental injustices.

Attributes: ENVI Humanities, Arts + Social Science Electives EVST Culture/Humanities EXPE Experiential Education Courses

Spring 2020
SEM Section: 01    W 1:10 pm - 3:50 pm     Laura J. Martin

STS 269  (F)(S) Mindsight: Mindfulness and Medicine  (DPE) (WS)

Cross-listings: REL 269  STS 269  ANTH 269  ASST 269

Secondary Cross-listing

This course offers a social analysis and historical genealogy of meditation and mindfulness from its roots as a Buddhist practice through its modern applications in a variety of social settings including hospitals and clinics, schools & communities where it has been used to improve health outcomes, education outcomes, and other social outcomes. Throughout, we are interested in the scientific evidence that have tried to show how meditation and mindfulness can alter human experience, behavior, and well-being. We begin by considering how mindfulness and meditation practices were introduced and developed by the Buddha and continue to be taught and practiced today in contemporary settings, before turning to the rapid rise of scientific research on mindfulness in recent decades. How and why has research on mindfulness and meditation exploded since 2000 and how does this relate to better understandings of human emotions, human behavior, and human development? We critically examine the use and misuse of modern technologies and models developed by clinical psychiatry and biomedicine to better understand the relationship between the human brain, behavior, and emotions. We ask how meditation and mindfulness has been used to improve the training of doctors & teachers, as well as patient/provider encounters. Throughout, we are interested in how applied research and interventions of mindfulness training with medical training, schools, and other social domains has been used to generate a 'science of personal transformation' that is trying to harness the adaptability of human minds, brains, & behaviors. Students will be expected to engage in mindfulness practices during the semester.

Class Format: weekly tutorial, context-based learning, experiential learning

Requirements/Evaluation: weekly tutorial papers and discussion

Prerequisites: a course on Buddhism is preferred but not required

Enrollment Limit: 10

Enrollment Preferences: ANTH, SOC, REL, ASST majors; PHLH, STS concentrators; seniors and juniors

Expected Class Size: 10

Grading: no pass/fail option, no fifth course option

Distributions: (D2)  (DPE) (WS)

This course is cross-listed and the prefixes carry the following divisional credit:
REL 269 (D2) STS 269 (D2) ANTH 269 (D2) ASST 269 (D2)

Writing Skills Notes: This class will involve weekly tutorial essays of 1200 or 600 words, written feedback on every essay, and a mid-semester ‘writing chat’ with the instructor to improve patterns in writing.

Difference, Power, and Equity Notes: This class fulfills the Difference, Power, and Equity requirement because it will explore the ways that mindfulness can alleviate pervasive and population wide health issues in the US including rising rates of hypertension, anxiety, and mental health issues that are exacerbated by stress related to social inequality and structural violence. It explores and critiques the ways that mindfulness has been marketed as an elite and non-inclusive practice within the US.

Attributes: GBST South + Southeast Asia Studies Electives PHLH Social Determinants of Health

Fall 2019
TUT Section: T1    TBA     Kim Gutschow

Spring 2020
TUT Section: T1     Cancelled

STS 272  (S) The History and Mythology of Chinese Scripts

Cross-listings: STS 272  COMP 272  CHIN 272
Secondary Cross-listing

Written scripts using what are most often called “Chinese characters” have an attested history of over 3000 years and have been used all over the world to represent a range of different languages. In this course we will examine the history and development of Chinese characters from their earliest extant examples on sacrificial animal bones to their often amusingly misguided use for contemporary tattoos. We will look at historical evidence and mythology, carefully constructed grammatological studies and wild orientalist imaginings. Some topics will include: comparisons between the development of Chinese characters and other written scripts, the relationship between Chinese characters and the languages of China, the use of Chinese characters to write non-Chinese languages, Chinese characters in art and calligraphy, theories of connections between Chinese characters and Chinese philosophy and literature, issues of education and literacy, and the future of Chinese characters in the digital age.

Class Format: lecture/discussion

Requirements/Evaluation: quizzes, short writing assignments, a midterm, and a final exam

Prerequisites: none

Enrollment Limit: none

Expected Class Size: 15

Grading: yes pass/fail option, yes fifth course option

Distributions: (D2)

This course is cross-listed and the prefixes carry the following divisional credit:

STS 272 (D2) COMP 272 (D1) CHIN 272 (D1)

Attributes: Linguistics

Spring 2020

LEC Section: 01    TF 1:10 pm - 2:25 pm    Christopher M. B. Nugent

STS 273 (F) Politics without Humans?

Cross-listings: ENVI 273 STS 273 PSCI 273

Secondary Cross-listing

Are human beings the only beings who belong in politics? And is political involvement a unique or defining aspect of what it means to be human? Such questions are increasingly complex as the boundaries of “the human” become blurred by the rise of artificial intelligence, robotics, and brain implants: shifting attitudes towards both animal and human bodies; and the automation of economic and military decisions (buy! sell! attack! retreat!) that used to be the prerogative of human actors. How do visions of politics without humans and humans without politics impact our thinking about longstanding questions of freedom, power, and right? Can and should the link between humans and politics survive in an age in which "posthuman" or "transhuman" entities become central characters in the drama of politics? This class will consider these questions through readings, films and artifacts that bring political theory into conversation with science fiction, popular literature on the so-called “singularity” (the merger of humans with computers), science and technology studies, evolutionary anthropology, "new materialist" philosophy, and feminist theory.

Requirements/Evaluation: three 5- to 7-page papers, regular Glow posts, class participation

Prerequisites: please note that this is an introductory-level course with no prerequisites; first-year students and those with no background in political theory are welcome, as are more experienced students

Enrollment Limit: 25

Expected Class Size: 20

Grading: yes pass/fail option, yes fifth course option

Distributions: (D2)

This course is cross-listed and the prefixes carry the following divisional credit:

ENVI 273 (D2) STS 273 (D2) PSCI 273 (D2)

Attributes: AMST Critical and Cultural Theory Electives ENVI Environmental Policy PHIL Related Courses PSCI Political Theory Courses

Fall 2019
STTS 276  Music and the Internet
Since the release of Napster in 1999, the Internet’s relationship with music has been sometimes elevating and sometimes adversarial. While it has granted listeners access to broad music libraries and musicians access to large audiences, the Internet has also exposed listeners to legal action, taxed artists with dwindling royalties, and disrupted and reshaped the recording and publishing industries. This course examines how the Internet has affected music at every level, from its creation to its distribution and consumption. Topics will include music written for online spaces, musical performances that take place online, music and online gaming, live music that refers to the Internet, the financial and philosophical background of music file formats, changing notions of musical ownership, censorship of music online, music's place in memes, and the user experience in (and attitudes toward music projected by) services like iTunes, YouTube, Spotify, and musically.

Class Format: discussion

Requirements/Evaluation:  4-page midterm paper, 8-page final paper, one presentation, two mid-semester creative projects
Prerequisites: none
Enrollment Limit:  19
Expected Class Size:  14
Grading:  
Distributions: (D1)
Attributes: FMST Core Courses

Not offered current academic year

STS 319  (F)(S) Neuroethics  (WS)
Cross-listings: STS 319 NSCI 319 PSYC 319

Secondary Cross-listing
Neuroscience studies the brain and mind, and thereby some of the most profound aspects of human existence. In the last decade, advances in our understanding of brain function and in our ability to manipulate brain function have raised significant ethical challenges. This tutorial will explore a variety of important neuroethical questions. Potential topics will include pharmacological manipulation of "abnormal" personality; the use of "cosmetic pharmacology" to enhance cognition; the use of brain imaging to detect deception or to understand the ability, personality or vulnerability of an individual; the relationship between brain activity and consciousness; manipulation of memories; the neuroscience of morality and decision making. In addition to exploring these and other ethical issues, we will explore the basic science underlying them.

Requirements/Evaluation:  six 5-page position papers and five 2-page response papers as well as participation in discussions
Prerequisites: PSYC 212 (same as BIOL 212 or NSCI 201); or permission of instructor
Enrollment Limit:  10
Enrollment Preferences: Psychology majors and Neuroscience concentrators
Expected Class Size:  10
Grading:  no pass/fail option,  no fifth course option
Distributions: (D2) (WS)

This course is cross-listed and the prefixes carry the following divisional credit:
STS 319 (D2) NSCI 319 (D3) PSYC 319 (D2)

Writing Skills Notes: In alternating weeks, each student in a tutorial pair will write a 5-page essay based on the assigned readings. Essays will be discussed during tutorial meetings and written feedback from the professor will be provided for each essay. At the end of the semester, students will choose one of their prior essays to revise a their final submission. Students will receive from the instructor timely comments on their writing skills, with suggestions for improvement.

Attributes: NSCI Group B Electives PSYC Area 1 - Behavioral Neuroscience
**STS 338 (F) Transhumanism: Religion, Technoscience, Obsolescence**

**Cross-listings:** STS 338 HSCI 338 REL 338 SOC 338

**Secondary Cross-listing**

This interdisciplinary seminar invites students to pursue sociohistorical analysis and sustained critical discussion of the so-called "transhumanist movement" and its overriding aim: the transformation and eventual transcendence of human biological constitution; the realization, through highly speculative technoscientific means, of an enhanced or even "postbiological" existence, the so-called "posthuman condition," "Humanity 2.0." Through close readings of historical documents, transhumanist texts, scholarship on transhumanism, and relevant works of science-fiction film and literature, we will position the movement as an empirical conduit through which to explore the sociohistorical conditions under which transhumanist ideas have emerged, circulated, and taken up residence. To this end, we will consider transhumanism's ties to some of the most objectionable aspects of modern technology and late capitalism; eugenics, the commodification of health, and massive investments in pharmaceuticals, anti-aging medicine, and so-called "GNR" technologies (i.e. genetics, nanotechnology, and artificial intelligence and robotics); the movement's affinities with neoliberalism and Euro-American (cyber) libertarian politics; and what some have pointed to as transhumanism's racialized subtext of whiteness. We will furthermore devote considerable attention to the technological singularity, artificial intelligence, the figure of the cyborg, mind-uploading, space colonization, and cryonic suspension, all of which, like transhumanism broadly, suggest that science and technology have in some sense come to operate as powerful channeling agents for the very sorts of magical beliefs, practices, and forms of expectation and association that theorists of secularization expected modernity to displace. Lastly, throughout the course of the seminar we will take transhumanism as a provocation to think broadly and seriously about embodiment, culture, and ways of being human.

**Requirements/Evaluation:** attendance and participation, informal weekly writing, 15- to 20-page seminar paper

**Prerequisites:** none

**Enrollment Limit:** 20

**Enrollment Preferences:** Anthropology and Sociology majors and Science and Technology Studies concentrators

**Expected Class Size:** 20

**Grading:** yes pass/fail option, no fifth course option

**Distributions:** (D2)

This course is cross-listed and the prefixes carry the following divisional credit:

STS 338 (D2) HSCI 338 (D2) REL 338 (D2) SOC 338 (D2)

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**STS 353 (S) Is Science Native to Turtle Island? The History of Native Science in North America** (DPE)

**Cross-listings:** STS 353 AMST 353

**Secondary Cross-listing**

Settler sciences and technologies deployed by Europeans colonizing Turtle Island (what settlers called North America) were introduced as weapons of Indigenous termination. From medical violation, to anthropological theft, and industrial pollution, settler technoscience objectified and appropriated Indigenous people and lands, and attempted to displace Indigenous knowledge in the pursuit of settler supremacy. Indigenous bodies were cast as victims, objects and sometimes the tools of this project. And yet, as tools and objects, Indigenous peoples took up settler technoscience in a multitude of ways that failed (both purposefully and not) to adhere to the colonizing mission, incorporating Indigenous knowledges and orientations, subverting settler science as a source of authority, and positioning science as a site of Indigenous sovereignty. The practice of taking up science as a tool of decolonization has become explicit in recent decades as expressly Native sciences now shape tribal funding, college education, and negotiations with international governing bodies. This course will trace the history of Native sciences across different nations and disciplines from the antebellum period when settler sciences were taking shape in civilian institutions to the present when Native science is professionalizing and being codified. We will read primary sources and scientific treatises by Indigenous leaders, activists, and scientists alongside secondary sources in Indigenous science and technology studies (STS), history, and postcolonial and queer theory.

**Class Format:** seminar
**Requirements/Evaluation:** attendance and class participation, two 4-page research papers, and a final creative project (TBD with instructor) or 8- to 10-page paper

**Prerequisites:** none

**Enrollment Limit:** 15

**Enrollment Preferences:** American Studies majors and Science and Technology Studies concentrators

**Expected Class Size:** 13

**Grading:** no pass/fail option, yes fifth course option

**Distributions:** (D2) (DPE)

**This course is cross-listed and the prefixes carry the following divisional credit:**

STS 353 (D2) AMST 353 (D2)

**Difference, Power, and Equity Notes:** This course will explore how settler sciences have been used as a technology of difference making, dispossession, and genocide in United States history. It will also provide students a theoretical toolkit and historical perspective by which they can grapple with the fact that power structures like settler technoscience can be a source of both colonization and liberation.

**Attributes:** AMST Comp Studies in Race, Ethnicity, Diaspora AMST Critical and Cultural Theory Electives

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**STS 364 (S) Mental Health and Illness: Philosophical Considerations**

**Cross-listings:** PHIL 364 STS 364

**Secondary Cross-listing**

This course will raise and discuss a number of philosophical questions concerning our current understanding of mental health and mental illness. We will begin by examining the general concepts of health and disease, and then apply them to human psychology. Throughout the course, our focus will be on the best theoretical and practical knowledge we now have to diagnose, explain, and alleviate mental illness. Some of the questions that we will discuss are: What is psychopathology and what are its causes? Is it possible to have systematic knowledge of subjective experience? If so, is that knowledge importantly different in kind or in rigor from the knowledge we gain through physics, chemistry or geology? Are there metaphysical and ideological assumptions in contemporary psychiatry, and if so, could and should they be avoided? What is the basis on which current psychiatric diagnostic manuals are organized? Is that principle of organization justifiable or not? Do particular case histories offer good explanations of psychopathology? In framing and answering these questions, we will discuss subjective experience (or phenomenology) of mental illness; holism vs. reductionism; functional, historical and structural explanations of psychopathology; theory formation, evidence, and the role of values in psychology and psychiatry; the diversity and disunity of psychotherapeutic approaches; relationship between knowers and the known; and relationship between theoretical knowledge in psychiatry and the practices of healing.

**Class Format:** Seminar

**Requirements/Evaluation:** several writing assignments, evenly spaced throughout the semester

**Prerequisites:** two philosophy courses; or one philosophy and one STS course; or consent of the instructor

**Enrollment Limit:** 20

**Enrollment Preferences:** students who took Philosophy of Science or Philosophy of Mind; Philosophy and Psychology majors

**Expected Class Size:** 20

**Grading:** no pass/fail option, yes fifth course option

**Distributions:** (D2)

**This course is cross-listed and the prefixes carry the following divisional credit:**

PHIL 364 (D2) STS 364 (D2)

**Attributes:** PHIL Contemp Metaphysics & Epistemology Courses
How do medical anthropologists examine and interpret health, disease, and illness today, in order to elucidate the biosocial determinants of health and health-seeking behaviors? We are particularly interested in how medical anthropologists employ ethnographic techniques including interviewing, surveys, and observant participation/participant observation—also known as ‘deep hanging out.’ Through experiential inquiries, we investigate the systemic health inequalities that are produced by socio-economic hierarchies, while paying particular attention to the most marginalized and vulnerable groups. Through the semester, students pursue their own individual, fieldwork-based projects on campus with students & staff. Our goal is a better understanding of the limits and strengths of ethnographic inquiry as we explore the challenges of collaborative research into health and inequality in a local world structured by diverse forces, actors, and motives. We consider how medical anthropologists: tell stories that describe and influence the ways that patients and providers respond to a dialogic quest for health and well-being within a world structured by social inequality and suffering; interpret the biological, socio-cultural, and behavioural determinants of health at individual and population levels and seeks to mitigate the ways that health inequities are produced by social inequality and unequal access to health resources; understand biomedicine and other medical systems as scientific and cultural discourses that project their own rationalities and biases even as they try to improve health outcomes.

Requirements/Evaluation: four fieldnotes, weekly class discussion and writing exercises, final presentation on ethnographic project
Prerequisites: none
Enrollment Limit: 19
Enrollment Preferences: Anthropology, Sociology, Women's, Gender and Sexuality Studies majors; Public Health, Science and Technology Studies concentrators
Expected Class Size: 19
Grading: no pass/fail option, no fifth course option
Distributions: (D2) (DPE)

This course is cross-listed and the prefixes carry the following divisional credit:
WGSS 371 (D2) ANTH 371 (D2) STS 370 (D2)

Difference, Power, and Equity Notes: This class examines the intersection of race, gender, class, and sexuality in structuring health outcomes and access to health resources. It theorizes the dynamics of race, gender, and class in shaping patient/provider encounters and efforts to ‘improve’ health outcomes within contexts of structural violence (poverty, racism, and sexism) and social suffering.
Attributes: EXPE Experiential Education Courses PHLH Methods in Public Health

Fall 2019
SEM Section: 01 W 1:10 pm - 3:50 pm Kim Gutschow

STS 372 Time and Temporality

Duration, rhythm, speed, pace, trajectory, sequence, articulation, busyness, boredom, flow—time is one of the most fundamental categories of our experience of reality. Since the founding of the discipline, sociologists have been interested in how time, while seemingly given and natural, is deeply influenced by history and society. This two-part course will introduce students to the sociological analysis of time and temporality. In part one, students will explore the emergence of the so-called “modern western temporal order”—the sense of time that many people take for granted as the way things are. We will excavate the historical roots of schedules, clocks, calendars, and time zones; examine how capitalism and colonial conquest disseminated particular notions of time around the globe; and discuss leading theories of how constructions of time change through history and vary among communities. In part two, we will focus on one of the most frequently lamented and celebrated qualities of modern temporality: acceleration. Is the world speeding up? Why do so many people feel always pressed for time? What are the promises and limits of speed, acceleration, and ceaseless change for building a robust democratic society?

Requirements/Evaluation: participation, time diary analysis (3-5 pages), final paper (10-12 pages)
Prerequisites: none
Enrollment Limit: 20
Enrollment Preferences: Anthropology and Sociology majors
Expected Class Size: 15
Grading:
Distributions: (D2)
Not offered current academic year

STS 376 (F) Human-Computer Interaction
Cross-listings: CSCI 376 STS 376

Secondary Cross-listing

Human-Computer Interaction (HCI) principles are practiced in the design and evaluation of most software, greatly impacting the lives of anyone who uses interactive technology and other products. There are many ways to design and build applications for people, so what methods can increase the likelihood that our design is the most useful, intuitive, and enjoyable? This course provides an introduction to the field of human-computer interaction, through a user-centered approach to designing and evaluating interactive systems. HCI draws on methods from computer science, the social and cognitive sciences, and interaction design. In this course we will use these methods to: ideate and propose design problems, study existing systems and challenges, explore design opportunities and tradeoffs, evaluate and improve designs, and communicate design problems and solutions to varying audiences.

Requirements/Evaluation: course projects, in-class group work/participation, and exams
Prerequisites: CSCI 136
Enrollment Limit: 24
Enrollment Preferences: current or expected Computer Science majors
Expected Class Size: 24
Grading: no pass/fail option, no fifth course option
Distributions: (D2)

This course is cross-listed and the prefixes carry the following divisional credit:
CSCI 376 (D3) STS 376 (D2)

Fall 2019
LEC Section: 01 MR 2:35 pm - 3:50 pm Iris Howley

STS 377 (F) Landscapes in American Literature
Cross-listings: ENGL 376 STS 377 AMST 376

Secondary Cross-listing

This course examines representations of American landscapes in selected texts from the British colonial era to the present. Critical approaches will include narrative theory, formalism, eco-criticism, and science and technology studies. The central questions are: (1) How do authors adapt narrative and poetic forms to the representation of particular landscapes? (2) How do literary landscape representations change when new technologies arise for traversing and transforming them? (3) What effects can literary landscapes have on the landscapes we live in? Landscapes include settlements, cities, wildernesses, "frontiers," suburbia, and infrastructural scenes. Relevant technologies include the postal service, the railroad, the telegraph and telephone, the automobile, commercial aviation, and Skype. Texts may include: letters of Columbus, American Indian creation stories, early American religious texts, captivity narratives, slave narratives, and poems, short stories, and novels from the 17th to the 21st centuries, as different from one another as Dickinson's "Nature-sometimes sears a Sapling-" and Annie Proulx's Brokeback Mountain.

Requirements/Evaluation: discussion participation; five brief response papers (~2 pages); a mid-semester essay (~5 pages); a final essay (12- to 15-pages)
Prerequisites: none
Enrollment Limit: 15
Expected Class Size: 12
Grading: yes pass/fail option, yes fifth course option
Distributions: (D2)
This course is cross-listed and the prefixes carry the following divisional credit:
ENGL 376 (D1) STS 377 (D2) AMST 376 (D2)

Attributes: ENGL Criticism Courses

Fall 2019
SEM Section: 01    TR 8:30 am - 9:45 am     Ezra D. Feldman

STS 397  (F)  Independent Study: Science and Technology Studies
Independent Study: Science and Technology Studies
Grading:   yes pass/fail option,     yes fifth course option
Distributions:  (D2)

Fall 2019
IND Section: 01    TBA     Laura D. Ephraim
IND Section: 02    TBA     Ezra D. Feldman

STS 398  (S)  Independent Study: Science and Technology Studies
Independent Study: Science and Technology Studies
Class Format: Independent Study
Grading:   yes pass/fail option,     yes fifth course option
Distributions:  (D2)

Spring 2020
IND Section: 01    TBA     Laura D. Ephraim

STS 413  (F) Feminist Technoscience  (DPE)
Cross-listings:  WGSS 413  STS 413
Primary Cross-listing
Are Feminism and Science compatible commitments? What do these nouns mean when paired with one another, when capitalized (or not), when pluralized (or not), and when deployed by a range of authors in different disciplines? What features do they share as ethical, political, and epistemological practices? What have scientific feminism and feminist science looked like in print and in practice since the middle of the 20th century, and how have they shaped our present, 21st-century technoscientific culture? To address these questions, we will read a set of essays and academic articles that are connected by a trail of citations. We will begin with the editorial introduction to "Science Out of Feminist Theory," a 2017 special issue of Catalyst, and we will circle outward and backward to make sense of the terms and arguments we encounter there. We will read works of theory, like Donna Haraway's "Situated Knowledges," and research write-ups like Pat Treusch's "The Art of Failure in Robotics," and ethnographic work like Sophia Roosth's "Evolutionary Yarns in Seahorse Valley." While some of the readings will be set in advance, students will help shape the syllabus as we travel toward a better understanding of feminist technoscience's potentials and limitations at a time when technical change often outpaces careful consideration of its consequences.

Requirements/Evaluation:  discussion participation; five response papers (~2 pages); mid-semester essay (8 pages); final essay (12-15 pages)
Prerequisites: none
Enrollment Limit:  12
Enrollment Preferences:  Science and Technology Studies concentrators
Expected Class Size:  12
Grading:   yes pass/fail option,     yes fifth course option
Distributions:  (D2)  (DPE)

This course is cross-listed and the prefixes carry the following divisional credit:
Central to “Feminist Technoscience” is a recognition of and engagement with the historical under-privileging of women, women's work, and women's bodies in capital-S "Science" and in a wide range of other technoscientific practices. We will examine and elucidate several branches of feminist theory. We will also develop feminist accounts of contemporary technoscientific work, even as we critique a number of such accounts from the past several decades.

Attributes: STS Senior Seminars

Fall 2019
SEM Section: 01    W 1:10 pm - 3:50 pm     Ezra D. Feldman

Winter Study ---------------------------------------------------------------

STS 14 (W) Ethics of Technology
Cross-listings: CSCI 14 PHIL 14 STS 14
Secondary Cross-listing

A prominent company recently realized the machine-learning algorithm trained on its past hiring data had learned a bias against female candidates and so was unsuitable for resume evaluation. But given competing definitions of fairness, how should we decide what it means for an algorithm to be unbiased? Machine vision algorithms are systematically less likely to recognize faces of people of color. Since many face recognition algorithms are used for surveillance, would improving these algorithms promote justice? Deep fakes may pose serious challenges to democratic discourse, as faked videos of political leaders making incendiary statements cast doubt on the provenance of real videos. Do the researchers developing these algorithms, often academics funded by National Science Foundation grants, have an obligation to desist? In a field filled with such vexing questions, the ethical issue most commonly addressed by the media is whether a self-driving car should swerve to hit one person in order to avoid hitting two. In this class, we will go beyond the headlines to explore the ethics of technology. We will discuss issues such as transparency, bias and fairness, surveillance, automation and work, the politics of artifacts, the epistemology of deep fakes, and more. Our discussion will rely on articles from the course packet, enlivened by discussions with experts in the field over Skype. Students will apply their ethical knowledge to write multiple newspaper length op-eds arguing for their views. If students choose to submit these op-eds for publication, the instructor will coach them on appropriate procedures and venues. Adjunct Instructor Bio: Kathleen Creel '10 is an advanced doctoral student in the Department of History & Philosophy of Science at the University of Pittsburgh. Her research focuses on epistemic and ethical issues in computer science and its scientific applications, such as transparency in machine learning and the ability of algorithmic decisions to provide reasons.

Requirements/Evaluation: 3 op-eds for a total of 10 pages
Prerequisites: none
Enrollment Limit: 15
Enrollment Preferences: based on a written paragraph expressing interest
Grading: pass/fail only
Materials/Lab Fee: $20

This course is cross-listed and the prefixes carry the following divisional credit:
CSCI 14 PHIL 14 STS 14

Winter 2020
LEC Section: 01    MWR 1:00 pm - 3:50 pm     Katie A. Creel

STS 99 (W) Independent Study: Science and Technology Studies

Open to upperclass students. Students interested in doing an independent project (99) during Winter Study must make prior arrangements with a faculty sponsor. The student and professor then complete the independent study proposal form available online. The deadline is typically in late September. Proposals are reviewed by the pertinent department and the Winter Study Committee. Students will be notified if their proposal is approved prior to the Winter Study registration period.

Class Format: independent study
Grading: pass/fail only

Winter 2020

IND Section: 01  TBA  Laura D. Ephraim