

# AS.140 (HISTORY OF SCIENCE, MEDICINE, AND TECHNOLOGY)

## Courses

### AS.140.105. History of Medicine. 3 Credits.

Course provides an introduction to health and healing in the ancient world, the Middle Ages, and the Renaissance. Topics include religion and medicine; medicine in the Islamic world; women and healing; patients and practitioners.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Culture and Aesthetics (FA3), Citizens and Society (FA4)

EN Foundational Abilities: Creative Expression (FA3), Engagement with Society (FA4)

### AS.140.106. History of Modern Medicine. 3 Credits.

The history of medicine and public health from the Enlightenment to the present, with emphasis on ideas, science, practices, practitioners, and institutions, and the relationship of these to the broad social context.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Citizens and Society (FA4), Ethics and Foundations (FA5)

EN Foundational Abilities: Engagement with Society (FA4)

Writing Intensive

### AS.140.149. Histories of Public Health in Asia. 3 Credits.

This class explores histories of diseases, epidemics, and therapeutics in Asia. We will examine the rise of public health and the nation-state and the social and political factors that guided the outcomes of public health campaigns. Who was helped? Who was harmed? Why? How? To answer these questions, we will compare both top-down and bottom-up movements to understand questions of access and ethics in different communities—ethnic, racial, and religious—and the handling of different diseases that were acute, infectious, and chronic.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Citizens and Society (FA4), Ethics and Foundations (FA5)

EN Foundational Abilities: Engagement with Society (FA4)

Writing Intensive

### AS.140.178. History of Biology. 3 Credits.

The course surveys the emergence and development of life sciences since the 1700s. It examines major ideas, approaches, and debates regarding life, along with their material and cultural underpinnings as well as social impacts. One crucial question throughout the course is how social and cultural contexts have shaped views of life at particular times and places. Topics include natural history, classification, morphology, cell theory, physiology, evolution, genetics and eugenics, molecular biology, biomedicine, and biotechnology. Lectures are supplemented with discussions about primary historical texts and scholarly articles. Students will learn about the course content, methods in historical inquiries of scientific fields, and will develop an original research essay as a final project.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Science and Data (FA2), Ethics and Foundations (FA5)

### AS.140.210. History of Health and Healing in Africa. 3 Credits.

This class introduces students to the history of health and healing in African history. We will discuss the health challenges faced by people in Africa and the various approaches people have taken to understanding, preventing, relieving, and curing illness in different times and places as well as the connections between health, religion, environment, politics, and economics.

AS Foundational Abilities: Citizens and Society (FA4), Projects and Methods (FA6)

EN Foundational Abilities: Engagement with Society (FA4)

### AS.140.228. Epidemic!: Diseases that Shaped our World. 3 Credits.

In this course, we will look at a number of key epidemic diseases in the pre-modern and modern world, from Black Death to COVID-19, and investigate how it affected medical thought and practice, as well as political, social and economic lives. We will pay special attention to how these diseases spread and how they affected and were influenced by questions of race, gender, sexuality and colonialism.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Citizens and Society (FA4), Ethics and Foundations (FA5)

### AS.140.231. Health & Society in Latin America & the Caribbean. 3 Credits.

Medical practice is complex in Latin America and the Caribbean. Most countries in the region have universal healthcare; yet, the quality of clinical services varies widely, and is influenced by degrees of incorporation into—or marginalization from—social power structures. Many people take their health into their own hands by supplementing biomedicine with plant based remedies as well as religious and spiritual services. This course will interrogate the history and contemporary relevance of healthcare in Latin America and the Caribbean, with particular interest in how medicine intersects with colonialism, slavery, capitalism, neo-colonialism, grassroots revolutionary movements, the Cold War, and neoliberalism. Drawing on films, visual and performance art, and music, students will consider the ways in which race, gender, indigeneity, ability, class, and nation have affected people's experiences with medical practice. Informed by postcolonial and decolonial scholarship, we will also examine why Latin America and the Caribbean have become "laboratories" for the production of medical knowledge, and importantly, how that knowledge was created by indigenous, enslaved, and migrant people as well as professionals. Finally, we seek to understand individual health problems in relation to the social and political determinants of health. As such, the course prompts students to reflect on why healthcare professionals—in the United States and abroad—would benefit from historically-informed communication with patients and their communities. This is a discussion-based seminar that requires active participation. There are no exams. The course does not assume any previous knowledge of the history of medicine or Latin American history.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Culture and Aesthetics (FA3), Ethics and Foundations (FA5)

Writing Intensive

**AS.140.232. Food, Environment, and Society. 3 Credits.**

A seminar discussing crucial events and processes in global history which have shaped how food production and consumption impacted the environment and human societies. Students will learn how food practices, originally bounded within certain places and cultures, became transformed in modern societies with the rise of modern agricultural, transportation and food processing technologies, as well as the public health and environmental consequences of these transformations. Sessions will include lectures, seminar discussions, field visits or guest speaker events, and some hands-on activities. For the final project, students will conduct original research on topics of interest and produce a multi-media, public-facing intellectual product.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Culture and Aesthetics (FA3), Citizens and Society (FA4)

Writing Intensive

**AS.140.233. Science and Religion: A Complicated History?. 3 Credits.**

Religion is often portrayed as being at odds with science. From Galileo's treatment by the Roman Inquisition to contemporary Creationism museums, we are told that religious institutions do not support science. Likewise, religious people don't make good scientists – or do they? Is religion really the thorn in the side of science that so many claim it is? In this class, we will discover the interwoven history between scientific practice and religion, beginning with the atomism and humoral theories of the Ancient Greeks and culminating in 21st century debates about stem cells and cloning. Many of the great scientific minds were also deeply religious – how did their beliefs shape their practice of science and approach to the natural world? Is religion truly antithetical to scientific practice? And if not, why do we so readily assume that it is?

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Culture and Aesthetics (FA3), Citizens and Society (FA4)

EN Foundational Abilities: Creative Expression (FA3), Engagement with Society (FA4)

**AS.140.238. A History of the Mind Sciences. 3 Credits.**

This class offers a critical history of the mind sciences, examining how fields such as neuroscience, psychology, and psychiatry developed through a variety of empirical methods and technologies. It opens a window into how scientists, philosophers, medical practitioners, writers, patients, and physiologists constructed theories of cognition, sensation, and the emotions. What were the challenges in locating, opening, and reading the mind? Why? How? To what ends did these impulses serve? The core reading for this class will derive from the history of medicine, history of science, science studies, disability studies, medical anthropology, as well as recent publications in the mind sciences. Students will learn about the history of using animal models to inform human cognition and the consequences of sensations that failed to fit neat categories of sensing, for instance. We will also explore the relationship between behaviorist and cognitive sciences, the rise of fMRI, the Diagnostic and Statistical Manual of Mental Disorders (DSM), and psychopharmaceutical randomized control trials. We will further interrogate the politics of knowing the mind across centuries of experimentation and contemplation in different historical and cultural contexts.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Citizens and Society (FA4), Ethics and Foundations (FA5), Projects and Methods (FA6)

EN Foundational Abilities: Engagement with Society (FA4)

**AS.140.245. Biology and Society in Asia. 3 Credits.**

What major knowledge traditions about life's generation and function have taken shape in Asia that continue to shape our contemporary world? How have they fared in encounters with Western knowledge traditions? How have modern biology, biotechnology and biomedicine developed in Asia in recent years within distinct geopolitical contexts? This course addresses these questions with selected historical cases from China, India, Japan, Korea and selected Southeast Asian countries. It first introduces concepts and frameworks of major non-Western knowledge systems about life such as yin-yang and five phases and examine how religions, politics, and cross-cultural encounters impacted these systems, their evolutions or replacements. Then the class will examine the political, material, cultural and institutional contexts of more recent development in the life sciences in Asia. Class activities include lectures, discussions, research seminars, a final research project, and possible conversations with visiting professors and field trips.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Citizens and Society (FA4), Projects and Methods (FA6)

**AS.140.300. The Politics of Mobility: Cars and Public Transit in America. 3 Credits.**

What is more American than the car? Road trips along desert scenes, lonesome gas stations, roadside diners and motels, massive highway interchange ramps in Los Angeles, teenagers coming of age while exploring the suburbs in their first car—these are the images we tend to associate with the American gospel of liberty, individualism, and prosperity. Simultaneously, for many Americans, cars, car culture, and automotive infrastructures evoke more negative images—of environmental and noise pollution, of congested streets, and of urban sprawl. In cities throughout America, disruptive road construction projects have had a highly disproportionate impact on lower-income communities and communities of color. Moreover, many would argue that Americans' reliance on cars has resulted in substandard public transportation systems across the nation. Throughout the twentieth century—and especially since the 1960s—critics of car-centric planning have advocated for more investment in public transportation. More broadly, transportation planning has consistently been among the most contentious policy fields, generating fierce political battles in which Americans were forced to confront profound political questions—about the proper role of the federal government, about the environment, about (historic) architecture, about traffic safety, and about race, class, and gender. This course traces chronologically how the balance between cars and transit was negotiated as the twentieth century unfolded. We will use different historical approaches—political history, social and labor history, environmental history, the history of science and technology, and cultural history—giving us a broad array of perspectives to analyze the history of private and public passenger transportation in America. Throughout the course, we will put historical evidence in dialogue with current debates about transportation planning, encouraging us to imagine a more just and sustainable transportation future.

Distribution Area: Humanities

AS Foundational Abilities: Culture and Aesthetics (FA3), Citizens and Society (FA4), Democracy (FA4.1)

EN Foundational Abilities: Creative Expression (FA3), Engagement with Society (FA4)

**AS.140.301. History of Science: Antiquity To Renaissance. 3 Credits.**

The first part of a three-part survey of the history of science. This course deals with the origins, practice, ideas, and cultural role of scientific thought in Graeco-Roman, Arabic/Islamic, and Medieval Latin/Christian societies. Interactions across cultures and among science, art, technology, and theology are highlighted.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Culture and Aesthetics (FA3), Citizens and Society (FA4)

Writing Intensive

**AS.140.302. Rise Of Modern Science. 3 Credits.**

The last 250 years have witnessed significant transformations in science. This course surveys many of these key developments, including the chemical revolution, evolutionary theory, the periodic table, thermodynamics, quantum mechanics, genetics and biotechnology, and climate science. It highlights questions of discovery, professionalization, impact, and advocacy. How have scientists built upon prior discoveries, and what do we mean when we call something a "revolution"? What are the social, political, and environmental consequences of scientific research? How have scientists promoted their achievements and influenced policy at different times and places? The course will address these questions through readings, lectures, and discussion sections.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Citizens and Society (FA4), Ethics and Foundations (FA5)

EN Foundational Abilities: Engagement with Society (FA4)

**AS.140.303. Medieval Science: The History of the Experiment in the Middle Ages. 3 Credits.**

What is "Science"? How do we do "science"? How have the boundaries of these definitions – what we consider to be science and the proper methods of gathering scientific information – changed over the centuries? Have scientists always held the same beliefs about what kinds of knowledge and evidence constitute "science"? In this class, we will examine how science was done in the period before the "Scientific Revolution". We will learn about the ways in which Medieval scientists classified types of knowledge and what they considered to be acceptable means of determining truths about the world around them.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Citizens and Society (FA4), Projects and Methods (FA6)

EN Foundational Abilities: Engagement with Society (FA4)

Writing Intensive

**AS.140.305. History of Science and Technology in East Asia. 3 Credits.**

This course offers a survey of knowledge traditions in understanding/intervening nature and modern scientific/technological enterprises in East Asia and how they originated and have evolved over time. Material, philosophical, and social contexts/impacts will be highlighted throughout. Topics range from subjects recognized as traditional medicine, astronomy, classification, genetics, fishery, and biotechnology to themes regarding science and technology's relations with the state, politics, colonialism, postcolonialism, and the environment. Class activities include lectures, discussions, research seminars, and a final research project/presentation.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Citizens and Society (FA4), Ethics and Foundations (FA5), Projects and Methods (FA6)

EN Foundational Abilities: Engagement with Society (FA4)

**AS.140.308. Race, Racism and Medicine. 3 Credits.**

How can we think about the interconnections between racism, theories of race and the practice of medicine? Living at a moment when racial disparities in health outcomes in the United States are still very stark, this course will provide a historically grounded approach to thinking about the roles that race and racism have played in healthcare, the production of health disparities as well as the role of medicine in the development of racist thought. While much of this course will focus geographically within the United States, this class will also explore global histories of medicine, encountering questions of race and medicine in Africa, the South Pacific and Asia. In addition to the analysis of primary source documents and historical texts, students will also be introduced to theoretical approaches to the study of race and racism from W.E.B. Dubois, Sylvia Wynter, Frantz Fanon and others.

AS Foundational Abilities: Writing and Communication (FA1), Science and Data (FA2), Citizens and Society (FA4), Democracy (FA4.1)

Writing Intensive

**AS.140.312. The Politics of Science in America. 3 Credits.**

This course examines the relations of the scientific and technical enterprise and government in the United States in the 20th and 21st centuries. Topics will include the funding of research and development, public health, national defense, etc. Case studies will include the 1918 Spanish influenza epidemic, the Depression-era Science Advisory Board, the founding of the National Science Foundation and the National Institutes of Health, the institution of the President's Science Advisor, the failure of the Superconducting Supercollider, the Hubble Space Telescope, the covid pandemic, etc.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Citizens and Society (FA4), Democracy (FA4.1), Ethics and Foundations (FA5)

EN Foundational Abilities: Engagement with Society (FA4)

**AS.140.316. Minds and Machines. 3 Credits.**

Is the mind identical to the brain? Is the mind (or brain) a computer? Could a computer reason, have emotions, or be morally responsible? This course examines such questions philosophically and historically.

Topics include: the history of AI research from 1940s to present; debates in cognitive science related to AI (computationalism, connectionism, and 4E cognition); and AI ethics.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Culture and Aesthetics (FA3), Ethics and Foundations (FA5)

EN Foundational Abilities: Creative Expression (FA3)

**AS.140.317. The Hydrologic Sphere: Histories of Water in the Colonial and Postcolonial World. 3 Credits.**

Water supplies are becoming scarcer globally due to climate change. We use clean water—fresh and salt—in a variety of ways that provide comfort, stability, and health, making it one of the most valuable commodities on Earth. While countries in the Global North are beginning to see more frequent and lengthier droughts, those in the Latin America, Africa, and South Asia have long struggled over how to distribute and use their clean water supplies. This class will examine how colonialism and its far-reaching effects have created an environment of scarce water supplies in many areas of the world. Water access is difficult to achieve, but for much of the Global South, the colonial period helped craft the problems we see today. This class will ask what colonial and postcolonial technologies' construction and use teach us about equitable clean water distribution, how social and cultural identities influence water supplies and use, and why water has been such an important element—and commodity—in our world, especially where Europeans settled and oppressed local populations.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Citizens and Society (FA4), Ethics and Foundations (FA5)

Writing Intensive

**AS.140.321. Scientific Revolution. 3 Credits.**

How did the Western understanding of nature change between 1500 and 1720? We'll study the period through the works of astronomers and astrologers, naturalists and magi, natural philosophers and experimentalists, doctors and alchemists & many others.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Culture and Aesthetics (FA3), Citizens and Society (FA4)

EN Foundational Abilities: Creative Expression (FA3), Engagement with Society (FA4)

**AS.140.324. Commercializing Science: Academic Entrepreneurs from Kelvin to Venter. 3 Credits.**

From the 19th century physicist William Thomson (Lord Kelvin) to contemporary geneticists such as Walter Gilbert and Craig Venter, academic scientists and engineers across a broad range of disciplines have commercialized academic knowledge and inventions as patentees, consultants, and entrepreneurs. This course examines the motives and strategies behind such commercialization activities, ethical issues associated with them, and the factors influencing their success. We will also explore the history of currently dominant policies and institutions designed to foster the commercialization of academic science and evaluate their impact from a longer-term perspective.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Ethics and Foundations (FA5), Projects and Methods (FA6)

Writing Intensive

**AS.140.327. Science and Utopia. 3 Credits.**

This seminar will explore the complex interaction between science, technology and utopian/dystopian thought from the late nineteenth century. Major utopians will include Bellamy, H.G. Wells, Mark Twain, Frank Lloyd Wright, Aldous Huxley, George Orwell, Sinclair Lewis, B.F. Skinner, Margaret Atwood, and Walt Disney.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Culture and Aesthetics (FA3), Citizens and Society (FA4), Democracy (FA4.1)

**AS.140.329. Women, Health, and Medicine in Colonial and Antebellum America. 3 Credits.**

This class will examine the history of women's health and medicine in America from the 17th century to the mid-19th century, a period in which settler colonialism and the trans-Atlantic slave trade mixed European, Indigenous American, and African people and belief systems, resulting in diverse healing practices and understandings of the body and gender. Major themes addressed in the course include reproductive health, domestic and "alternative" medicine, as well as enslavement, racialized medicine, poverty, disability, and sexuality.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Citizens and Society (FA4), Ethics and Foundations (FA5)

Writing Intensive

**AS.140.330. Scientists or Swindlers: Alchemy from Antiquity to the Scientific Revolution. 3 Credits.**

This class will cover the history alchemy from its Greco-Egyptian and Arabic roots, through its popularization in the European Middle Ages, to its zenith in the Early Modern period. Using both primary and secondary sources, students will see how alchemy, rather than being a mystical quest or nothing more than the desire to turn lead into gold, was in fact a complex system of belief about the natural world and the generation of materials, both organic and inorganic. Reading works by historical alchemists such as Roger Bacon, Paul of Taranto, Paracelsus, and others, students will understand how alchemy was incorporated into numerous intellectual and practical disciplines, including metallurgy, medical theory, pharmacology, natural philosophy, and even theology. At the conclusion of the course, students should be able to answer: what role did the translation movements and cross-cultural exchanges play in the development of European alchemy? In what ways were (al)chemical theories different than modern chemistry? And in what ways are they the same? How do technology and culture drive changes in scientific theories? All majors are welcome, although students may find that a high-school level understanding of general chemistry will be helpful.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Culture and Aesthetics (FA3), Citizens and Society (FA4)

EN Foundational Abilities: Creative Expression (FA3), Engagement with Society (FA4)

Writing Intensive

**AS.140.333. The Idea of the Artificial Human in History. 3 Credits.**

This course will explore the ancient idea of the artificial human ("human-made human") from the Renaissance to the 21st century, focusing on its relationship to the prevalent scientific/philosophical/religious views of the time. Readings will include fictional classics such as Mary Shelley's *Frankenstein*, H.G. Wells's *Island of Dr. Moreau*, and Karel Capek's *R.U.R.*, as well as essays by scientists and philosophers. Readings, films, discussions, lectures.

Distribution Area: Humanities, Social and Behavioral Sciences



**AS.140.334. Science, National Security, and Race: the US-East Asia Scientific Connections. 3 Credits.**

America's scientific connections with China, its East Asian allies, and the rest of the world are heavily shaped by geopolitics nowadays. This course traces the historical root of these connections and invites you to explore the movement of knowledge and people, the omnipresence of the state and concerns about national security, and the career of Asian American students and scientists. It aims to equip you with a set of analytical tools to understand the complicated dynamics of the transnational scientific community between America and East Asian countries. As nationalism regains momentum globally, it is time to look back on history and think about how we should approach the increasingly tumultuous world!

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Citizens and Society (FA4), Ethics and Foundations (FA5)

Writing Intensive

**AS.140.335. Photography in Science and Medicine (19th Century-Present). 3 Credits.**

How did photography change science and medicine, and vice versa?

This course explores how and why photography and related imaging techniques became central to a broad variety of fields of science and medicine, ranging from anthropology and astronomy to embryology, nuclear physics, and radiology. It also considers how these techniques were created in the first place and to what extent they affected the standing of photography as an "art-science." Central themes will include (among others) the status and objectivity of photographic evidence; the historical relationships between technical, scientific, and artistic change; the role of photography in disseminating scientific and medical knowledge and (mis)information; the racial and gender biases of scientific and medical photography; and photography's use as a tool of scientific exploration, measurement, and surveillance. Students will be developing their own research projects in consultation with the instructor.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Culture and Aesthetics (FA3), Ethics and Foundations (FA5), Projects and Methods (FA6)

EN Foundational Abilities: Creative Expression (FA3)

**AS.140.336. History of Mental Healthcare in the United States. 3 Credits.**

In recent decades, much has been done in the United States to destigmatize mental illness and incorporate psychiatric services into broader systems of healthcare and welfare. As clinicians, policy makers, social scientists, activists, and other stakeholders have collaborated to promote mental health and reintegrate people with behavioral disorders into society, they have often contrasted their efforts with those made in the past, portraying community-based approaches as more efficacious and humane. Narratives like these, however, deemphasize many important continuities in the history of American psychiatry. In this discussion-based course, students will explore how concerns about citizenship and social control have shaped the organization and provision of mental healthcare in the United States from the early nineteenth century to the present day. They will also complete various assignments designed to hone their ability to evaluate historical arguments, conduct independent and collaborative research on primary sources, and communicate the results of their scholarship to professional and lay audiences.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Citizens and Society (FA4), Ethics and Foundations (FA5)

**AS.140.338. Unsafe America: Accidents, Disasters, and Society, 1800–2020. 3 Credits.**

According to the latest data from the National Safety Council, accidents cause over 173,000 deaths and 48,300,000 injuries per year across the United States. Since the nineteenth century, accidents ranging from burns to car crashes to the Three Mile Island nuclear disaster have become increasingly central to American life. This course examines the history of accidents and why Americans have chosen to control some hazards but not others. We will investigate how accidents have changed over time alongside the introduction and spread of new technologies; cultural beliefs about safety; the economic and political interests of different stakeholders; and the efforts of safety experts, nonprofits, corporations, families, and the government to protect Americans from harm. On one level, this course traces the unexpected consequences of remaking the United States with modern industry, transportation, infrastructure, and consumer products. At the same time, it captures how the principles of free enterprise and personal responsibility continue to influence the American safety movement.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Citizens and Society (FA4), Ethics and Foundations (FA5)

Writing Intensive

**AS.140.340. The Engineer in the World. 3 Credits.**

This course explores key themes in the global history of engineering. Engineering can refer to a profession, a kind of practical knowledge, or even a disciplined way of seeing the world. We will seek historical answers to three questions: Who is an engineer? What do engineers do? What do engineers know? Readings and discussions are structured around case studies from across the globe and from the fourth century BCE to the present. Although engineering students will find it particularly useful for understanding the historical context of their chosen field, all students interested in the historical relationship between society, the built environment, and expertise are encouraged to enroll.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Citizens and Society (FA4), Ethics and Foundations (FA5)

Writing Intensive

**AS.140.341. Robots: The Measure of the Human. 3 Credits.**

Will we end up oppressed by robot overlords? Will robots become our lovers and caretakers? Can we solve societal problems by building yet more sophisticated robotic machines? Will we find ourselves out of work as technologies take over tasks once considered the exclusive domain of humans? In this course we will question our hopes and fears by examining the global development of robotics, the entanglement of technology with politics and economics, and the impact—real or imagined—that robots are having on society. We will marvel at the ingenuity of French and Japanese automata of centuries past, scrutinize assumptions about labor, race and gender in automation and "labor saving" technologies, examine how the "intelligence" of AI is understood differently in Japan vs the US, ponder the "uncanny valley" phenomenon, and meet a quirky cast of robotic prototypes including Shakey, Eliza, Wabot I and II, Aibo, Kismet, Paro, Asimo, Actroids, Repelees, Sophia, Pepper, and Hyodol. By contrasting technological and social histories of actual robots with fictional representations in literature, animation, and film, we will seek answers to persistent questions about our inevitable robotic futures.

AS Foundational Abilities: Writing and Communication (FA1), Culture and Aesthetics (FA3), Ethics and Foundations (FA5)

EN Foundational Abilities: Creative Expression (FA3)

Writing Intensive

**AS.140.347. History Of Genetics. 3 Credits.**

Intellectual and social history of the gene concept, including Mendelism, eugenics, medical genetics, DNA, genomics, and personalized medicine.  
 Distribution Area: Humanities, Social and Behavioral Sciences  
 AS Foundational Abilities: Writing and Communication (FA1), Citizens and Society (FA4), Ethics and Foundations (FA5)  
 EN Foundational Abilities: Engagement with Society (FA4)  
 Writing Intensive

**AS.140.349. History of Astrology. 3 Credits.**

This course covers the history of horoscopic astrology from ancient times to the Scientific Revolution. We will read key astrological sources from the ancient Greek and Islamicate worlds, learning about prevailing theories of celestial influence and methods for making horoscopes. We will consider the key scientific and religious divisions that led to a millennium-long (and more!) debate over astrology's credibility. Using readings from modern historians, students will become familiar with a period during which divination by the stars was largely accepted. We will discuss the role astrological culture played in pre-modern Europeans' conception of the physical world and society.  
 Distribution Area: Humanities, Social and Behavioral Sciences  
 AS Foundational Abilities: Writing and Communication (FA1), Culture and Aesthetics (FA3), Citizens and Society (FA4)  
 Writing Intensive

**AS.140.356. Man vs. Machine: Resistance to New Technology since the Industrial Revolution. 3 Credits.**

This course analyzes various episodes of "luddism" in the history of science and technology, from the destruction of textile machinery in the early 1800s up to recent controversies about robots, vaccines, and AI chatbots. What explains why different groups of actors did (or did not) resist the introduction of new technologies, ranging from the bicycle and the automobile to the nuclear energy plant? What types of fears did these technologies arouse? What can history teach us about the recurring concern that technological innovation might destroy more jobs than it generates? These are some of the themes we will be examining in this seminar on the basis of research presentations and classroom discussions of primary and secondary historical sources.  
 Distribution Area: Humanities, Social and Behavioral Sciences  
 AS Foundational Abilities: Citizens and Society (FA4), Projects and Methods (FA6)  
 EN Foundational Abilities: Engagement with Society (FA4)

**AS.140.358. Shaping the Future of the City: Science, Technology & International Expositions 1850 to the present. 3 Credits.**

This research seminar will examine how urban elites attempted to shape public opinion about the future of their city using world's fairs (international expositions) in their words "to educate" the population about trends and possibilities. Expositions from 1851 until the present will be examined. Each student will be asked (in consultation with the faculty) to write a research paper in lieu of a final examination. Lectures, discussion, films.  
 Distribution Area: Humanities, Social and Behavioral Sciences  
 AS Foundational Abilities: Citizens and Society (FA4)  
 EN Foundational Abilities: Engagement with Society (FA4)

**AS.140.360. War and the Environment. 3 Credits.**

How have wars shaped the natural world, and vice versa? How have affected communities responded to environmental harm? This course explores the environmental history of warfare from the 18th century through the 20th century. It interrogates the relationship between imperialism, nation-building, and environmental destruction, while asking how the natural world might or might not have influenced the outcome of these military conflicts. The course demonstrates how warfare drew attention to environmental vulnerabilities, both on a local and a global scale. Topics include resource extraction in Euro-American empires, WWII recycling campaigns, ecological violence in the Vietnam War, and nuclear weapons testing.  
 Distribution Area: Humanities, Social and Behavioral Sciences  
 AS Foundational Abilities: Writing and Communication (FA1), Citizens and Society (FA4), Ethics and Foundations (FA5)  
 EN Foundational Abilities: Engagement with Society (FA4)  
 Writing Intensive

**AS.140.363. Cities of the World: Urbanization and the Environment in the Nineteenth Century. 3 Credits.**

The nineteenth century witnessed a dramatic change in the dynamic of urbanization, as the share of the world's urban population doubled from 6.6 per cent in 1800 to 12 per cent in 1900. Cities around the world were being built and rebuilt during this period with the aim of creating productive urban spaces by bringing about transformations in urban infrastructure like water supply, sanitation engineering, architecture, zoning and street planning, transportation engineering, and so forth. This seminar will survey the transnational history of the development and transformation of cities around the world, including in the United States of America, and their environments during the nineteenth century. The histories of these cities are intimately linked with both the natural environment surrounding them and the communities living and building on them, and we will explore a different city every week with the help of different kind of media, like literary fiction, film, maps, newspaper articles, etc.  
 Distribution Area: Humanities, Social and Behavioral Sciences  
 AS Foundational Abilities: Culture and Aesthetics (FA3), Citizens and Society (FA4)  
 EN Foundational Abilities: Creative Expression (FA3), Engagement with Society (FA4)

**AS.140.367. International Development in Action: America's Cold War Technical Cooperation in East Asia. 3 Credits.**

Technical cooperation has been one of the most favored formats of international development because it aims to provide internal capacity for future development. Nevertheless, technical cooperation has been a site of political conflicts where different countries, social groups, capital funds, forms of knowledge, expertise, and opportunities collide. This course critically analyzes the political, diplomatic, social, and cultural surroundings of technical cooperation projects between the United States and East Asia during the second half of the 20th century. The course has three parts, each focusing on 1) theoretical and conceptual approaches to technical cooperation projects in East Asia, 2) different stakeholders, and 3) specific examples that display how the projects unfolded in real-life situations. Throughout the course, students will analyze various formats of historical sources such as photography, diary, correspondence, pamphlet, interview transcripts, and more!  
 Distribution Area: Humanities, Social and Behavioral Sciences  
 AS Foundational Abilities: Citizens and Society (FA4), Democracy (FA4.1), Ethics and Foundations (FA5)  
 EN Foundational Abilities: Engagement with Society (FA4)

**AS.140.382. Health and Healing in Early-Modern England. 3 Credits.**

This course explores health and society in England, 1500 to 1800 including healing practices at all levels of society, concepts of health and illness, patient experiences, and patterns of disease. Recommended Course Background: At least one course in History or History of Science, Medicine, and Technology.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Citizens and Society (FA4), Projects and Methods (FA6)

EN Foundational Abilities: Engagement with Society (FA4)

Writing Intensive

**AS.140.386. Politics, Technology and the Media: 1800 to the present. 3 Credits.**

This seminar will explore scientific-technological innovations and how they affected politics and communication in the United States from the introduction of steam railways and boats, the newspaper, the telegraph, telephone, photography, radio, the movies, television, and the digital computer. In lieu of a final examination, each student will be asked to write a research paper in consultation with the faculty. Lectures, discussions, films.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Citizens and Society (FA4), Ethics and Foundations (FA5)

EN Foundational Abilities: Engagement with Society (FA4)

**AS.140.387. Islam and Medicine: Histories, Debates and Controversies. 3 Credits.**

This course will analyze how "Islam" and "medicine" interacted and intersected from the medieval and into the modern and contemporary world. We will look at the rise of Islamic medicine in the medieval and early modern period, the modernization of medicine in the Islamic world, and we will also investigate questions and challenges facing Muslim physicians and patients in the US, Europe and inside and outside the Muslim-majority world. We will address questions related to modernization of medical education in the Islamic world, colonization and decolonization, questions related to gender and sexuality, issues related to Islamic bioethics from organ transplantation and clinical death to abortion, artificial fertilization among other similar questions.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Culture and Aesthetics (FA3), Citizens and Society (FA4)

**AS.140.388. History of the Earth and Environment. 3 Credits.**

The Earth we know today is very different from that which scientists debated little more than 100 years ago. While scientists today hold the Earth to be roughly 4.54 billion years old, at the turn of the 20th century there was little agreement about the Earth's age, and geologists' estimates did not exceed 100 million years. And while today scientists agree that the continents sit atop lithospheric plates that move and interact, giving rise to volcanoes, earthquakes, mountain ranges, and deep ocean trenches, the Earth of the 19th century was one that was slowly cooling and shrinking. In addition to getting older and less static, the Earth of the 20th century also yielded up some of its uniqueness, as it ceased to be the only planet under the purview of those fields that would collectively become known as the earth and planetary sciences. A Cold War program in planetary exploration of the Moon, Mercury, Mars and Venus extended inquiry into the other rocky bodies of the solar system and placed what was known about the Earth into a broader context. Finally, an environmental movement and the discovery of anthropogenic climate change showed the Earth to be more vulnerable and susceptible to human activities than previously imagined. This course examines our changing view of the Earth and the environment from the 19th century to the present, highlighting the interrelatedness of science, society, and culture. What does it mean when our understanding of the Earth changes?

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Science and Data (FA2), Citizens and Society (FA4)

EN Foundational Abilities: Engagement with Society (FA4)

Writing Intensive

**AS.140.396. Encoding Bias: Algorithms, Artificial Intelligence, and the History of Computing. 3 Credits.**

How can an inanimate object be biased? How is it possible for a machine or software to discriminate on the basis of race, gender, or economic status? After all, machines are supposed to be free from the lapses of judgement that can cloud human minds. And yet, the more we rely on digital technologies, the more we realize that algorithms are not as neutral and objective as we hoped they would be. This course traces the origins of computer bias to the aspirations, ideals, metaphors, hopes, fears, and, of course, biases of the people who developed computer technologies. During the semester, we will learn about the humble origins of computing technologies, the original, human "computers" in astronomical labs, Alan Turing's invention of a "digital" mechanical computer to decipher Nazi codes, the Cybernetics movement, the models of rationality and intelligence that guided the development of AI, the gendering of the computing profession, the advent of personal computers, and more. While exploring these episodes in the history of computing we will discuss and analyze the social and structural origins of computer and algorithm bias.

Distribution Area: Humanities, Social and Behavioral Sciences

AS Foundational Abilities: Writing and Communication (FA1), Ethics and Foundations (FA5), Projects and Methods (FA6)

Writing Intensive

**AS.140.398. Godzilla and Fukushima: Japanese Environment in History and Films. 3 Credits.**

Japan is often described as “nature-loving,” and is considered to be one of world leaders in environmental protection policies. Yet current environmental successes come on the heels of numerous environmental disasters that plagued Japan in the past centuries. Juxtaposing Japanese environmental history and its reflection in popular media, the course will explore the intersection between technology, environment, and culture.

Distribution Area: Humanities, Social and Behavioral Sciences  
AS Foundational Abilities: Writing and Communication (FA1), Culture and Aesthetics (FA3), Ethics and Foundations (FA5)  
Writing Intensive

**AS.140.400. Ignorance and Intelligence in Modern Science. 3 Credits.**

In this course, students will examine knowing and not knowing in the history of science. These competing factors have powerfully influenced scientific research programs, national policies, and international relations in the 19th and 20th centuries. But controlling scientific information is not a simple affair. How have scientists, corporations, and governments attempted to shift the balance of ignorance and intelligence in their favor, and what difficulties have they confronted? How has access to cutting-edge research been dispersed across geographic, institutional, and political lines? The course explores these questions through several case studies. Topics include trade secrecy in the global agrochemicals industry, censorship of nuclear fission research, modern cryptography, and contemporary misinformation campaigns. The course will also evaluate popular calls for “open science” against traditions of secrecy in scientific research.

AS Foundational Abilities: Writing and Communication (FA1), Citizens and Society (FA4), Ethics and Foundations (FA5)  
EN Foundational Abilities: Engagement with Society (FA4)  
Writing Intensive

**AS.140.403. The Cell and Molecules in History. 3 Credits.**

This is a reading seminar on foundational scientific writings and historical literature related to history of our understanding of the biological cell and molecules. From the idea of spontaneous generation to Schleiden and Schwann’s cell theory, from the “organizer” concept in embryology, to the comparative studies of Hox genes, from tissue culture to genomics, students explore how different tools, methods, and styles of reasoning became employed in creating and evaluating empirical observations, and how religious beliefs, metaphors, ideologies, state funding, and infrastructure became pivotal in organizing data and producing knowledge. The final project can be a historiographical essay, or a research paper related to the topic.

Distribution Area: Humanities  
AS Foundational Abilities: Science and Data (FA2), Citizens and Society (FA4), Projects and Methods (FA6)  
Writing Intensive

**AS.140.410. Senior Research Seminar. 2 Credits.**

For History of Science, Medicine, and Technology majors preparing a senior honors thesis.  
Distribution Area: Humanities, Social and Behavioral Sciences  
AS Foundational Abilities: Writing and Communication (FA1), Projects and Methods (FA6)  
Writing Intensive

**AS.140.411. Senior Research Seminar. 3 Credits.**

For History of Science, Medicine, and Technology majors preparing a senior honors thesis.  
Distribution Area: Humanities, Social and Behavioral Sciences  
AS Foundational Abilities: Writing and Communication (FA1), Projects and Methods (FA6)  
Writing Intensive

**AS.140.412. Research Seminar. 2 Credits.**

Departmental Majors Writing a Senior Thesis Only  
Distribution Area: Humanities, Social and Behavioral Sciences  
AS Foundational Abilities: Writing and Communication (FA1), Projects and Methods (FA6)  
Writing Intensive

**AS.140.484. Science and the Marketplace. 3 Credits.**

This seminar explores the economic history of science and technology, mainly but not exclusively in the 19th-21st centuries. It takes stock of the historiography of capitalism and evaluates its application in, and relevance to, histories of science and technology (and vice versa). Specific topics that will be covered include, among others: market and moral economies in science; resource extraction; management-labor relations; intellectual property and knowledge circulation in science and technology; the economic valuation of life and nature; the trustworthiness of commercial science; and the histories of different types of knowledge work. The final selection themes will be determined in consultation with the students, who will be developing their own research project over the course of the semester.  
Distribution Area: Humanities, Social and Behavioral Sciences  
AS Foundational Abilities: Writing and Communication (FA1), Ethics and Foundations (FA5), Projects and Methods (FA6)  
Writing Intensive

**AS.140.501. Independent Study. 3 Credits.**

This course is designed for students who will be conducting independent research in the history of science, medicine, or technology under the supervision of a faculty mentor. Prior discussion and approval of the intended work is required.  
**Prerequisite(s):** You must request Customized Academic Learning using the Customized Academic Learning form found in Student Self-Service: Registration > Online Forms.  
AS Foundational Abilities: Citizens and Society (FA4), Projects and Methods (FA6)  
EN Foundational Abilities: Engagement with Society (FA4)

**AS.140.502. Independent Study. 1 - 3 Credits.**

This course is designed for students who will be conducting independent research in the history of science, medicine, or technology under the supervision of a faculty mentor. Prior discussion and approval of the intended work is required.  
**Prerequisite(s):** You must request Customized Academic Learning using the Customized Academic Learning form found in Student Self-Service: Registration > Online Forms.  
AS Foundational Abilities: Citizens and Society (FA4), Projects and Methods (FA6)  
EN Foundational Abilities: Engagement with Society (FA4)



**AS.140.598. HoST Internship. 1 Credit.**

Students completing an internship in the history of science, medicine, and technology may be eligible to earn academic credit by enrolling in this course. Please contact the instructor to determine whether your internship qualifies.

**Prerequisite(s):** You must request Customized Academic Learning using the Customized Academic Learning form found in Student Self-Service: Registration > Online Forms.

AS Foundational Abilities: Citizens and Society (FA4), Projects and Methods (FA6)

EN Foundational Abilities: Engagement with Society (FA4)

**AS.140.601. Methods in the History of Science, Medicine, and Technology. 3 Credits.**

Constructing histories of science, technology, and medicine is a craft. It is a practice of knowledge production, an engagement with empirical evidence, and an attentiveness to the limitations of our sources. As a graduate student, having a great topic and a brilliant mind is not enough. One needs to learn the tools of the profession, master disciplinary methods, and develop personal habits that make scholarly work effective, sustainable, and enjoyable. This seminar focuses on the how-to aspect of science, medicine, and technology studies. We will ask and answer questions such as: How do I find an archive? What if I don't have an archive? What if questions I find interesting cannot be answered in an archive? Can I rely on digital databases? Should I do something with DH? How do I keep writing if my mind is blank? How do I find that quote I saw somewhere three years ago? We will take a deep dive into various histories of science, technology, and medicine created by scholars working with different kind of materials, different methodologies, and different theoretical underpinnings. We will learn about various sources available to scholars of science, medicine, and technology, explore methods to investigate those sources, master the practical skills of research, and develop individual practices of day-to-day scholarly work.

**AS.140.607. Emotion and Cognition in History of Science, Medicine, and Technology. 3 Credits.**

Historical actors are emotional beings. Studies of emotion and cognition over the past several decades show that emotions shape sensory perception, communication, motivation, and decision-making. This seminar explores the variety of ways that historians of science, medicine, and technology can approach the emotional worlds of historical subjects and integrate analysis of emotion-centered cognitive processes into their research. The seminar explores literature in philosophy of science, cognitive science, psychology, and history of emotions, alongside works and methods in history of science, medicine, and technology.

**AS.140.608. Historical Catachresis in Science, Technology, and Medicine. 3 Credits.**

This research seminar focuses on "historical catachresis" as a mode of analysis. Drawing inspiration from Gayatri Spivak's adaptation of Derrida's concept of catachresis, historical catachresis (as developed by feminist intellectual historian Tani Barlow) treats ubiquitous terms not as stable referents, but as repositories of social experience and normalizing strategies. By focusing on these terms as sites of "occulted evidence," historians can uncover the ways in which ideas, objects, and subjects were constructed and contested in specific historical moments. This seminar will examine different categories such as "scientist," "woman," "medicine," and "magic," without presuming them to be universal or transhistorical entities. Doing so emphasizes the future anterior, or what objects/subjects "will have been," as a way to keep open the possibilities and contingencies of the past.

**AS.140.614. Media of Science, Medicine, and Technology. 3 Credits.**

This research seminar starts from the premise that the production and circulation of scientific knowledge has always been mediated: through parchment and paper, books and journals, laboratory notebooks and electronic datasets. Likewise the body in health and illness has mediated through material objects, from the uroscopy flask to the stethoscope to MRIs and PET scans. Students will explore the theory and method of media history in developing their own research projects in the history of science, medicine, and technology.

**AS.140.616. Metaphors in Science and Medicine. 3 Credits.**

This research seminar invites students to consider the role of metaphor and analogy in histories of knowledge production. We will analyze primary sources associated with major and minor concepts from antiquity to the present. By taking a global and comparative approach to metaphor, this class examines the role of aesthetics in discursive and graphic articulations of optics, astronomy, physiology, anatomy, sphygmology, evolution, cognition, bacteriology, psychology, and beyond.

**AS.140.620. Space and Place in the History of Science, Medicine and Technology. 3 Credits.**

This research seminar explores how the production of space and place facilitates, promotes, and authorizes knowledge and practice in science, medicine, and technology. The course encourages awareness of how perceptions and lived experiences of space and place can be used in historical research. We will critically interrogate spatial categories of analysis, including space, place, scale, and mobility, and the influence of the so-called "spatial turn" on history. What affordances are offered to history by deploying spatializing terms such as "local," "global," "public," "private," "center," and "periphery"? And how does a historical approach complicate understandings of space and place? Case studies include domestic spaces such as bedrooms and kitchens; public spaces like streets and taverns; institutional spaces such as laboratories, factories, and hospitals; mobile spaces, for instance ambulances and ships; and virtual spaces.

**AS.140.621. Historiography in Science, Medicine, and Technology Studies. 3 Credits.**

What does it mean for the history of science to have a history of its own? In this course, we explore historiography of science, medicine, and technology and learn how to make it work for us. In addition to acquainting ourselves with the oft-cited classics and the rising stars in the field, we will learn how to make the most of previous scholarship by identifying explicit and implicit research motivations, discussing how difference in topics necessitates different source materials and research questions, and learning about the relationship between the argument and the writing style, as well as the form, content, and organization of the work. Rather than treating historiography as a pesky obligation, we will learn how to take advantage of historiography to become more mindful of our own motives behind telling histories of science, medicine, and technologies, to forge our own scholarly identities, and begin developing our own scholarly voices.

Writing Intensive

**AS.140.632. History of Technology. 3 Credits.**

This seminar introduces students to both classic works and more recent literature and trends in scholarship on the history of technology. We will be covering themes such as: innovation and maintenance; technology and the environment; technology, gender, and race; the history of engineering; technoscience; the histories of large technical systems; and the global histories of techniques and material culture. The final selection of topics and readings will take into account the interests and backgrounds of students enrolled in the course, for whom this seminar can (but does not have to) contribute to the completion of a field in the history of technology.

**AS.140.641. Departmental Colloquium. 2 Credits.**

Reports by staff members, students, and invited speakers.

**AS.140.642. Colloquium. 2 Credits.**

Reports by faculty, students, and invited speakers.

**AS.140.665. History of Science and Technology in Asia. 3 Credits.**

The seminar introduces classic and recent scholarly literature for a series of discussions on significant themes and debates in history of science, medicine, and technology in East Asia. Students learn the necessary scholarly background to effectively evaluate ideas and approaches in the subject and gain critical perspectives for their own research. The final project can be either an historiographical essay or a term paper based on original research. Students are recommended to attend lectures in AS.140.305 when possible.

Distribution Area: Humanities

Writing Intensive

**AS.140.683. Non-human Agency in Science, Medicine, and Technology Studies. 3 Credits.**

Studies of non-humans repeatedly challenge the assumption that agency is an exclusively human prerogative. We not only witness animals scheme and carry out their plans, but also experience interaction with non-animate objects as if they had will and capacity to manipulate us. What is the relationship between anthropomorphization and agency? What does our attribution of agency to objects say about our understanding of agency as an analytical category? How do we integrate non-humans into our investigation of human activity? In this course we will explore studies of non-human agency in history, sociology, and anthropology of science, medicine, and technology. Learning from authors such as Donna Haraway, Anna Tsing, Bruno Latour, Sherry Turkle, Lucy Suchman, Cynthia Breazeal and others, we will examine human relationship with companion species, vermin, mycelium, humanoids, digital technologies, and others.

**AS.140.685. Histories of Reproduction. 3 Credits.**

While there is a vast literature on reproduction in a global context, this course will focus on the arc of what we might call decolonial histories of reproduction—those that center issues of justice, freedom, intimacy, and agency, as well as cultural negotiation, conflict, and change. Students will write critical histories of reproduction, with attention to the ways in which reproductive politics interface with institutions that exert hegemonic, racialized, gendered, and ableist forms of state power and colonial power. We will also appreciate the ways in which reproduction interacts with other—non geographically-bound, non-institutionalized, and non-state mediated—forms of biopolitical power. We will analyze how the historiography has evolved over time and discuss future directions in the field.

**AS.140.705. History of Science: Antiquity To Renaissance. 3 Credits.**

Graduate-level version of 140.301 with additional readings, discussions and assignments in seminar format.

**AS.140.708. Rise of Modern Science. 3 Credits.**

This seminar surveys major scientific developments from the mid-18th century to the present, with a focus on the physical, chemical, and biological sciences. It consists of weekly reading assignments which highlight canonical events in modern science, raise historiographical questions, and model historical research methodologies.

**AS.140.710. Scientific Revolution. 3 Credits.**

Reading intensive seminar that studies the events and ideas that transformed western science from Medieval natural philosophy to the experimental sciences (1500-1720s). Lecture meets with AS.140.321.

**AS.140.801. Directed Readings & Dissertation. 3 - 10 Credits.**

Under the guidance of the faculty advisor, this course is for HST graduate students who are attending a directed readings course or preparing a dissertation.

**AS.140.808. Graduate Independent Research. 9 Credits.**

Independent research for graduate students in the History of Science and Technology Department only.

**AS.140.888. Dissertation Research. 20 Credits.**

For graduate students in the History of Science and Technology Department Only.