

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

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## 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.

Area: Humanities, Social and Behavioral Sciences

### 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.

Area: Humanities, Social and Behavioral Sciences

### 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.

Area: Humanities, Social and Behavioral Sciences

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.

Area: Humanities, Social and Behavioral Sciences

### AS.140.198. Technology and Environment in Japanese Films and Anime. 1 Credit.

In the course of the semester we will watch Japanese films and animation that touch upon topics of technology and environment. The list of screenings includes several blockbusters, classics in film studies, and documentaries. The course is a companion course to 140.398 "Godzilla and Fukushima," but is also open to anyone interested. Students who do not take 140.398 will be required to write a short review paper by the end of the semester.

Area: Humanities, Social and Behavioral Sciences

### AS.140.227. 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.

Writing Intensive

### 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.

Area: Humanities, Social and Behavioral Sciences

### 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.

Area: Humanities, Social and Behavioral Sciences

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.

Area: Humanities, Social and Behavioral Sciences  
Writing Intensive

**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.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences  
Writing Intensive

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

This course surveys major scientific developments from the mid-18th century to the present, with a focus on the physical and the life sciences. Topics include the chemical "revolution", evolution by natural selection, DNA, military science, and contemporary biotechnology. Throughout, the course highlights the institutional context of scientific work. It also situates scientific developments within their broader techno-social context, paying special attention to the political, economic, and/or technological factors that enabled these developments in the first place, and to the social, political, and environmental impacts that accompanied the rise of modern science.

Area: Humanities, Social and Behavioral Sciences

**AS.140.306. Science And Religion. 3 Credits.**

Science and religion are crucial influences on Western culture. This course examines their interrelations during the past 2000 years, including the Athens-Jerusalem debate, medieval theology, the Galileo affair, evolution, and current issues.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences

**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 ethically culpable? How have computers changed our minds? This course examines such questions philosophically and historically. Topics include early AI research, computationalism, connectionism, 4E cognitive science, simulation theory, and the Singularity.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences  
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.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences

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.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences

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.

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!

Area: Humanities, Social and Behavioral Sciences

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.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences  
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.

Area: Humanities, Social and Behavioral Sciences  
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.

Area: Humanities, Social and Behavioral Sciences  
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.

Area: Humanities, Social and Behavioral Sciences  
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 and vaccines. 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 current 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 assigned articles and book chapters.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences

**AS.140.364. The City Course: Disciplinary Perspectives on Urban Life and Form. 3 Credits.**

This course aims, first, at enlarging our understanding of cities by looking at them from a variety of disciplinary perspectives and, secondly, at examining the distinctive ways of thinking associated with disciplines from engineering, the sciences and medicine to anthropology, sociology, economics, archaeology, history and literature. Baltimore and cities from around the world will provide resource material. Lectures, discussions, term projects.

Area: Humanities, Social and Behavioral Sciences

**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!

Area: Humanities, Social and Behavioral Sciences

**AS.140.374. Force and Matter from Galileo to Maxwell's Field Theory. 3 Credits.**

This seminar will trace the concept of force and its interaction with matter from Galileo in the late sixteenth century to rise of field theory in the work of James Clerk Maxwell in the late nineteenth century. Major figures to be studied through primary source readings are Galileo, Kepler, Descartes, Hobbes, Newton, Bosovich, Schelling, Laplace, Fourier, Faraday, William Thomson (Lord Kelvin) and Maxwell.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences

**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.

Area: Humanities, Social and Behavioral Sciences

**AS.140.393. Technology and the Making of the Modern World. 3 Credits.**

This course critically examines the role of technology in some of the main developments that have shaped the modern world, ranging from industrialization and globalization processes to the rise of new political ideologies and gender patterns. This course is co-taught by an instructor from the Smithsonian Institution and will include a public history research project.

Area: Humanities, Social and Behavioral Sciences

**AS.140.394. Heredity, Eugenics, and Society. 3 Credits.**

In this course, we will examine the ways in which concepts of the gene, heredity, and innateness have both shaped and been shaped by society over the last two-plus centuries. Topics under discussion may include: eugenics, biological determinism, scientific racism, human breeding programs, genetics and gender, genetics and intelligence, genetic engineering including CRISPR, assisted reproductive technologies, sociogenomics, and polygenic risk scores. Term paper. AS.140.106 recommended.

Area: Humanities, Social and Behavioral Sciences

Writing Intensive

**AS.140.395. Prosthetics and Technologies of Disability. 3 Credits.**

The purpose of prosthetics seems to be fairly straightforward—to restore function that was lost due to the loss of a body part. According to this logic, the quality of prosthetics is measured in its ability to replicate lost human function and restore individuals with disabilities to normalcy. And indeed, numerous disability technologies enrich the experience of individuals in need of them. At the same time, these very technologies are often perceived as a marker of something abnormal, or, by the nature of their design prove to be an obstacle for mobility and access. Therefore, as much as prosthetics and other technologies of disabilities improve the quality of life, they also led to stigmatization, marginalization, and exclusion. By looking at prosthetics and disability in a variety of historical contexts, we will learn what kind of ideas of 'normalcy' they reflect, and how they shape the experience of individuals who use them.

Area: Humanities, Social and Behavioral Sciences

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.

Area: Humanities, Social and Behavioral Sciences

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.

Area: Humanities, Social and Behavioral Sciences  
Writing Intensive

**AS.140.401. The Knowledge City: from Silicon Valley to Bloomberg's New York. 3 Credits.**

This seminar will explore the increasingly productive relationship between research universities and urban and regional development in the period after World War II to the present. Working with the faculty, participants will be expected to develop a research paper. Discussion, presentations, lectures.

Area: Humanities, Social and Behavioral Sciences

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

For History of Science, Medicine, and Technology majors preparing a senior honors thesis.

Area: Humanities, Social and Behavioral Sciences

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

For History of Science, Medicine, and Technology majors preparing a senior honors thesis.

Area: Humanities, Social and Behavioral Sciences

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

Departmental Majors Writing a Senior Thesis Only

Area: Humanities, Social and Behavioral Sciences

Writing Intensive

**AS.140.423. Science and Science Fiction in Global Perspective. 3 Credits.**

What can we learn from science fiction about the history of science and technology? What ideas about science do Sci-Fi novels manifest? Is the relationship between science and science fiction always the same, across different time periods and geographical areas? This course will explore these questions by taking a comparative perspective. Each meeting we will read a Sci-Fi novel from Europe, America, South and East Asia, and discuss it in conjunction with historical writing about relevant scientific developments. Reading Sci-Fi novels from 17th-century Germany, 19th-century England and India, and 20th-century Japan, China, Korea and the US, the students will explore how actual scientific developments were reflected in fiction, and what fictional depictions say about the aspirations and anxieties provoked by new technologies.

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.

Area: Humanities, Social and Behavioral Sciences

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 Independent Academic Work using the Independent Academic Work form found in Student Self-Service: Registration, Online Forms.

**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 Independent Academic Work using the Independent Academic Work form found in Student Self-Service: Registration, Online Forms.

**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 Independent Academic Work using the Independent Academic Work form found in Student Self-Service: Registration, Online Forms.

**AS.140.601. Research Methods/Hist Sci. 3 Credits.**

This graduate seminar introduces students to a variety of methods, sources, and approaches used in the historical study of science, medicine, and technology. The emphasis will be on the development of skills crucial to the successful completion of research projects.

**AS.140.609. Technology and Labor. 3 Credits.**

In recent years historians, anthropologists, and sociologists of technology show increasing interest in questions of human labor. Adding to the literature that explores emergence, production, and use of technology, the new direction seeks to uncover and to analyze human labor that is necessitated by emerging technologies, and that is often concealed by them. The course will cover several classic works but will mainly focus on recent exciting scholarship that explores the relationship between technology and labor.

**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.140.621. 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.140.641. 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.140.660. Working with Manuscripts: Paleography, Codicology, and Editing. 3 Credits.**

This is a practical course on using manuscript materials (especially premodern documents). It covers how to read both Latin and early modern vernacular scripts in various formats (paleography), how to describe, date, and document manuscript materials (codicology), and how to edit texts and make critical (and not-so-critical) editions. Other related topics of interest to enrolled students are possible. The specific topics that will be stressed will respond to the interests and needs of those students who enroll. Students are encouraged to bring examples or problems from their own research for study, practice, and analysis.

**AS.140.681. Graduate Readings in History of Science and Technology. 3 Credits.**

The course explores advanced topics in History of Technology, as well as in History of Science, Medicine, and Technology in East Asia.

Area: Humanities, Social and Behavioral Sciences

**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, be 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.140.684. Science and the Marketplace. 3 Credits.**

This seminar explores the global economic history of science and technology and the historical entanglements between science and capitalism by investigating various practices that were simultaneously scientific and economic or had both scientific and economic dimensions. Through this lens, which reflects recent trends in the historiography of science-economy relationships, this course seeks to develop new perspectives on topics ranging from the modern histories of scientific publishing and popularization to the acquisition and standardization of research tools and materials and the conduct of various forms of knowledge work. Specific interests of the seminar participants will be taken into account.

**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 course surveys major scientific developments from the mid-18th century to the present and related historiographical issues, with a focus on the physical and the life sciences. Topics include the chemical "revolution", evolution by natural selection, DNA, military science, and contemporary biotechnology. Throughout, the course highlights the intellectual and institutional foundations and broader techno-social contexts that have shaped scientific work. The class aims to train majors to undertake field exam in this area of expertise, but can also be taken by non-majors to expand their scholarly horizons into the field of history of modern science and technology. NB: Students are encouraged to attend lectures for 140.302, but seminar may be taken without attending those lectures.

**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. 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.