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

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 Islamicate 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.140.108. Freshman Seminar: Culture, Communication & Technology. 3 Credits.
This seminar traces the evolution and impact of oral transmission, writing, print, photography, film, and electric and electronic media of communication from antiquity to the present. Readings, films, discussion.
Area: Humanities, Social and Behavioral Sciences

AS.140.156. Harm City? Public Health in Baltimore, 1797 to the present. 3 Credits.
Explores the history of public health in urban America using Baltimore as example. Examines topics such as infectious diseases, mental health, sanitation, rodent control, primary care, substance abuse, and STDs using frameworks of racism, classism, poverty and inequality.
Area: Humanities, Social and Behavioral Sciences

AS.140.168. Freshman Seminar: Lives in Science. 3 Credits.
In this seminar, we will examine the history of science and scientific medicine through the lens of biography. Readings will consist primarily of scientific biographies. Themes to consider include integrating a scientist's life and work, stereotypes of scientists (hero, villain, martyr, etc.), women in science, race in science. Textual analysis and research and writing skills will also figure in our discussions. Students will write a term paper on a scientist or physician of their choice, on approval of the instructor. Writing intensive.
Area: Humanities, Social and Behavioral Sciences

AS.140.177. Freshmen Seminar: Techno-ethics. 3 Credits.
We are all familiar with bio-ethics: dealing with living subjects is an enterprise prone to ethically questionable practices, and we have learned the hard way to raise the ethical questions regarding biomedical projects. But what about technology? Can technology be unethical? Sure, one can design technologies of pain and destruction, or simply ignore regulations and make unsafe products—those technologies would be unquestionably unethical. But what if somebody comes up with new technology with the best intentions in mind? Could those technologies be ethically unsound? In addition to learning the skills required in college, academia, and professional world, the freshman seminar on Techno-ethics will explore the ethical issues involved in technological designs. Students will learn how to identify groups of people who could be harmed by technologies, how to detect factors that may result in unethical use of technologies, and how to pay attention to social dynamics that could turn even useful technologies into a nightmare.
Area: Humanities, Social and Behavioral Sciences

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. Du Bois, Sylvia Wynter, Frantz Fanon and others.
Writing Intensive
AS.140.231. Health & Society in Latin America & the Caribbean. 3 Credits.
Healthcare is complex in Latin America and the Caribbean, where many people supplement biomedicine with plant and diet-based remedies, as well as religious and shamanic services. This course will cover the history of health and society in Latin America and the Caribbean from 1750 to the present, covering such topics as: medicine and the Spanish inquisition; disease control and tropical medicine; the medical knowledge of enslaved and indigenous peoples; reproduction and nation-state formation; and healthcare during the Cold War and its aftermath. Throughout, we will also consider the ways in which ideas about race, gender, indigeneity, class, and disability have affected people's access to healthcare. By the end of the course we will understand why leading scholars have referred to Latin America and the Caribbean as a “laboratory” for the production of medical knowledge. We will discover how that knowledge has been influenced by common people as well as professionals, and how it has influenced medical practice around the world. This is a discussion-based seminar course. It does not assume any previous knowledge of the history of medicine or Latin American and Caribbean 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.140.301. 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.
Survey of major scientific developments from the mid-18th century to the present.
Area: Humanities, Social and Behavioral Sciences

AS.140.305. From the Compass to Androids: History of Science, Technology, and Medicine in Asia. 3 Credits.
The course explores the history and cultural context of science, medicine, and technology in East Asia, from the ancient Chinese science to the latest scientific and technological developments in Japan.
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.140.311. Ecology, Health, and the Environment. 3 Credits.
Explores diverse problems linking ecological, environmental and public health themes, with focus on Chesapeake region. Students' research projects can be outside Chesapeake region.
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 Super collider, the Hubble Space Telescope, the covid pandemic, etc.
Area: Humanities, Social and Behavioral Sciences

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.140.322. Follow the money: Science, technology, and the ‘knowledge economy’, c.1800-present. 3 Credits.
This course examines the historical emergence of knowledge-driven economies, paying special attention to the funding, development, and use of science and technology for commercial purposes.
Area: Humanities, Social and Behavioral Sciences

AS.140.323. Eating in Early Modern East Asia. 3 Credits.
Can we identify a distinctly East Asian food culture, or can we only speak of East Asian food cultures, plural? How are regional food cultures and culture writ large mutually constitutive? In this discussion-based course, we explore these questions through focused readings on the following aspects of local and regional foodways: agricultural environment, ingredient availability, recipe composition, meal preparation, dining practices, and the relationship between diet, health, and illness in early modern medical discourse.
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.140.328. Science and Technology in Slave Regimes. 3 Credits.
This course explores the questions that arise when we juxtapose slave regimes with scientific and technological change. We'll consider very broad questions, such as, was slavery compatible with modernity? As well as study specific cases where slavery and technology intersected, such as the cotton gin or sugar cane plantations, but also the existence of “modern” scientific societies within slave regimes. We'll explore these questions from a trans-national perspective by comparing cases in the Antebellum US, Cuba, Brazil, Haiti and other countries.
Area: Humanities, Social and Behavioral Sciences

Writing Intensive

AS.140.335. Photography in Science and Medicine (19th Century-Present). 3 Credits.
Since the 19th century invention of photography as a new “art-science,” photographic evidence and techniques have been central to many fields of (social) science and medicine. This seminar examines the uses of photography and related imaging technologies in various disciplines including astronomy, bacteriology, criminology, geology, and radiology. We will also explore how photography has historically shaped (among many other things) notions of scientific objectivity and ideas about racial difference.
Area: Humanities, Social and Behavioral Sciences

AS.140.339. Science & Technology in the Development of Modern Latin America. 3 Credits.
This seminar will survey the development of science and technology in modern Latin America, and explore their dynamics in the context of cultural, political, and economic forces.
Area: Humanities, Social and Behavioral Sciences

AS.140.341. Humanoid Robots in Global History. 3 Credits.
Humanoid machines reflect their creators’ ideals of humanity. Comparing examples from societies across the globe we will investigate what factors shaped these ideals, and how they manifested in technological design.
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.140.356. Man vs. Machine: Resistance to New Technology since the Industrial Revolution. 3 Credits.
This course analyzes different 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 biotechnology and ICT.
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.140.366. The American Illness Experience. 3 Credits.
What does it mean to be ill in America? How has the experience of illness in America changed across time and space, from the early 19th century to the present day, from the home, to the hospital, from the community clinic to the rural frontier? How might illness experience be different for Americans across the race, gender, and sexual orientation spectrums? How do medical providers and other caregivers relate to illness, sickness, suffering, and death? In this class we will approach these, and other questions regarding illness through a variety of methodological lenses, including literature, anthropology, sociology, and history. This course will encourage students to think critically about how trends in the history of medicine such as the rise and fall of American public hospital medicine, the regulation and standardization of medical education, improved and expanded medical technologies, and changing attitudes towards childbirth, death, and dying have impacted patient and provider experiences. Throughout the course, students will also take three field trips—to the Ronald McDonald House of Maryland, Johns Hopkins Hospital, and Gilchrist Hospice—and learn from special guests who have experienced particular illnesses as patients or providers. At least one prior course in History of Medicine is recommended but not required.
Area: Humanities, Social and Behavioral Sciences

AS.140.373. Pandemics: History and Fantasy. 3 Credits.
This course is a global survey of past epidemics, focusing on the role of colonization, urbanization, and modernization in the outbreak and management of infectious disease. Case studies are drawn from the Americas, East Asia, and Europe, and combine narrative approaches from history, anthropology, literature, and film.
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, Boscovich, Schelling, Laplace, Fourier, Faraday, William Thomson (Lord Kelvin) and Maxwell.
Area: Humanities, Social and Behavioral Sciences
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 4.5 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, 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. These changes not only affected our intellectual understanding of the earth, they also came along with changes in the way we as a society conceptualize the nature of global problems, their causes and their impacts. In this course we will examine our changing view of the earth and the world in the 20th century with a focus on the interrelatedness of science, society, and culture.
Area: Humanities, Social and Behavioral Sciences
Writing Intensive

AS.140.391. Individualized Medicine from Antiquity to the Genome Age. 3 Credits.
A seminar for advanced undergraduates. We explore the notion of the individual in medicine over twenty-five centuries, from the Hippocratics to the invention of the case study during the Renaissance to the current JHU medical curriculum. The history of medicine survey, AS.140.105 or AS.140.106, is recommended though not required. Graduate students are welcomed but should expect to do additional work and readings.
Area: Humanities, Social and Behavioral Sciences
Writing Intensive

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 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. Students are encouraged to enroll in AS.140.198, “Technology and Environment in Japanese Films and Anime” (1 credit) to attend movie screenings accompanying the course.
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.140.411. Senior Research Seminar. 2 Credits.
Area: Humanities, Social and Behavioral Sciences
between technology and 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 take into account.

The course explores advanced topics in History of Technology, as well as technology in museums and popular culture.

What does it mean for science to have a history? Comparing newer approaches with classic works, we will explore different strategies for placing science, medicine, and technology in social context.

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.

What does it mean for science to have a history? Comparing newer approaches with classic works, we will explore different strategies for placing science, medicine, and technology in social context.

The goal of the seminar is to learn a variety of approaches to the historical investigation of science, medicine, and technology. Students will learn to identify, investigate, and analyze different primary sources, and compare the use of different methods and analytic frameworks for their interpretation. At the same time, students will practice general organization, note-taking, and writing techniques essential for successful completion of a research project.

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.140.705. History of Science: Antiquity To Renaissance.
The first part of a three-part survey of the history of science. This course
deals with the concepts, practice, and the cultural roles of scientific
thought from classical antiquity to the time of Copernicus. Topics
include the pre-Socratics, the systems of Plato and Aristotle and their
continuing influence, Islamic science, Latin medieval scholasticism
and the universities, and Renaissance hermeticism/natural magic.
Interactions across science, art, technology, and theology are highlighted.
Lecture meets with AS.140.301

Survey of history of science, 18th-20th c. Students are encouraged to
attend lectures for 140.302, but seminar may be taken without attending
those lectures.

AS.140.710. Scientific Revolution.
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.140.802. Directed Readings & Diss.
AS.140.803. Independent Study-Summer.
AS.140.812. Directed Readings & Diss.
AS.140.832. Directed Readings & Diss.
AS.140.836. Directed Readings & Diss.
AS.140.842. Directed Readings & Diss.
AS.140.843. Directed Reading & Dissertation.
AS.140.844. Directed Reading & Dissertation.
AS.140.845. Directed Readings and Dissertation.
AS.140.863. Directed Reading and Dissertation.
AS.140.888. Dissertation Research.
For graduate students in the History of Science and Technology
Department Only.