HISTORY OF SCIENCE, MEDICINE, AND PUBLIC HEALTH

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History of Science, Medicine, and Public Health is an interdisciplinary program that focuses on how different forms of knowledge and technology have been created in various times, places, and cultures, and how they have shaped the modern world. The major explores a wide range of questions. For example, is science universal, or does each culture have its own approach to trustworthy knowledge? What is the relationship between medical expertise, social inequality, and everyday life? What is the nature of technology and its relationship to political, economic, and military power? Why do even the best public health campaigns have unintended consequences?

Course topics include the history of American and Western medicine and public health, medicine and race from the slave trade to the present, health and healing in Africa, scientific knowledge production in the global South, institutions of confinement, health activism, biotechnology, the history of the earth sciences, climate change and planetary catastrophe, the scientific revolution, scientific collections and material culture.

A major in History of Science, Medicine, and Public Health offers excellent preparation for a wide range of careers. Premedical students and others interested in health-related fields can combine preprofessional training with a broad humanistic education. The major also provides a solid foundation for any career at the intersection of the sciences, technology, and public life, including law, business, journalism, museum work, public policy, and government.

REQUIREMENTS OF THE MAJOR

The major in History of Science, Medicine, and Public Health requires twelve term courses (and twelve credits), including the two-term senior requirement. Students select a concentration of seven courses that guides them through an area of specialization. The seven concentration courses must include two courses in History of Science, Medicine, and Public Health; one seminar numbered 100 or above in History of Science, Medicine, and Public Health or in History; one full-credit science course; and three electives chosen from relevant courses in any department.

Concentrations The five standard concentrations in the major are Medicine and Public Health; Global Health; Science, Technology, and Society; Gender, Reproduction, and the Body; and Media, Knowledge, and Visual Cultures. Students may also design customized concentrations in consultation with the director of undergraduate studies (DUS). No later than the beginning of the junior year, students in the major must select a standard concentration or indicate that they wish to design their own.

Electives Beyond the seven concentration courses, students must complete three additional electives in History of Science, Medicine, and Public Health. One of the electives must be a seminar, and one must be chosen from a concentration other than
the one selected for the major. All courses for the major are chosen in collaboration with the student’s adviser.

**Credit/D/Fail** A maximum of one History of Science, Medicine, and Public Health course taken Credit/D/Fail before the fifth term of enrollment may be counted toward the requirements of the major.

**Roadmap** See visual roadmap of the requirements.

**SENIOR REQUIREMENT**

By the end of reading period in the spring term of the junior year, students choose whether they will work toward a yearlong or a one-term senior project. Yearlong senior projects are completed in HSHM 490, 491; one-term projects are completed in HSHM 492. Students who choose a one-term project must take an additional HSHM-listed course to complete the major. Only students who complete a yearlong senior project are eligible for Distinction in the Major.

For both the one-term and yearlong senior projects, students select a project adviser, propose a tentative topic and title, and submit a proposal to the senior project director. The final product of the senior requirement may be a written essay or an alternative project such as a film, exhibition, catalog, atlas, or historical data reconstruction. In the case of an alternative project, the student must identify a second reader in addition to the adviser before the project is approved by the senior project director. Either the adviser or the second reader must be a member of the faculty in History of Science, Medicine, and Public Health. A written component to the senior project must illustrate sources and the intellectual significance of the project. For more details about requirements and deadlines, majors should consult the HSHM Senior Project Handbook; copies are available from the senior project director and on the program website.

**REQUIREMENTS OF THE MAJOR**

**Prerequisites** None

**Number of courses** 12 term courses (incl senior req)

**Distribution of courses** 7 courses in concentration, incl 2 HSHM courses, 1 sem in HSHM or HIST numbered 100 or above, 1 science course, and 3 electives; 3 addtl HSHM electives, incl 1 sem and 1 course outside major concentration

**Senior requirement** Yearlong project (HSHM 490, 491), or one-term project (HSHM 492) and 1 addtl HSHM elective

Courses in History of Science, Medicine, and Public Health explore the interactions of medicine, public health, technology, science, and society from a global and historical perspective. Encompassing the Scientific Revolution through the digital revolution, topics include public health and epidemics in global perspective; the relationships of medicine and society in modern America; climate change and the earth and environmental sciences; science, medicine, and race in the Global South; museums and scientific collections; genetics and biotechnology; medical technologies and pharmaceuticals; the interplay of technology, industry, and the state; and the relationship between science, medicine, and the arts.
Majors organize their curriculum through thematic concentrations that combine courses in the sciences and humanities. Concentrations include Medicine and Public Health; Global Health; Science, Technology, and Society; Gender, Reproduction, and the Body; and Media, Knowledge, and Visual Cultures. Students may also design concentrations in their own areas of interest in consultation with the director of undergraduate studies (DUS).

FACULTY ASSOCIATED WITH THE PROGRAM OF HISTORY OF SCIENCE, MEDICINE, AND PUBLIC HEALTH

Professors Deborah Coen, Naomi Rogers, John Warner

Associate Professors Paola Bertucci, Joanna Radin, William Rankin

Assistant Professors Nana Quarshie, Marco Ramos, Carolyn Roberts

Lecturers Sakena Abedin, Ivano Dal Prete, Ziv Eisenberg, Chitra Ramalingam

Affiliated Faculty Rene Almeling (Sociology), Toby Appel (Yale University Library), Melissa Grafe (Yale University Library), Dimitri Gutas (Near Eastern Languages & Civilizations), Ann Hanson (Classics), Jessica Helfand (School of Art), Marcia Inhorn (Anthropology), Kathryn James (Yale University Library), Amy Kapczynski (Law School), Gundula Kreuzer (Music), Amy Meyers (Yale Center for British Art), Alan Mikhail (History), Ayesha Ramachandran (Comparative Literature), Paul Sabin (History), Jason Schwartz (School of Medicine), Gordon Shepherd (School of Medicine), Frank Snowden (History), Rebecca Tannenbaum (History), R. John Williams (English)

View Courses

Courses

* HSHM 006b, Making Climate Knowledge  Deborah Coen
This is a course about how scientists have come to know what they know about our impacts on the earth’s climate and our vulnerability to climate change. At what point in history did humans become the first species to consciously alter the conditions of life on earth? What evidence did their knowledge rest on? Did scientists bear responsibility to warn of these consequences? These historical questions are pivotal to thinking today about who bears moral responsibility for the climate crisis and about future courses of action. Knowledge of the causes and impacts of climate change hinges on a range of disciplines, from ecology to agriculture to public health. In this course, we attend to the multiplicity of ways of knowing climate, as well as to the challenges of integrating them. We also track the historical entanglements of climate knowledge with imperialism, racism, and extractive capitalism. The course includes visits to the Yale Farm, the Peabody Museum’s collections, and the Yale Center for British Art, and a trip to the New York Botanical Garden in the Bronx. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program.  WR, HU

* HSHM 007a / HIST 007a, Science and the Senses  Chitra Ramalingam
This course takes up the historical and cultural relationships between seeing, sensing, and knowing in science. Scientific work is conducted with the whole body, yet science is usually assumed to be a visual practice: looking into microscopes, peering into telescopes, gazing at screens and graphs and diagrams. How did vision take on this apparent role as the primary sense for knowing the world through science? What role have smell, hearing, taste, and touch – and other perceptual systems – played in
scientific work, and why have they historically been devalued? What are the possibilities for a sensuous and embodied approach to the history of science? We examine the role of the senses in the production of science through primary sources on the senses and scientific inquiry; secondary scholarship in the history and anthropology of sensation, feminist science studies and disability studies; and through immersive experiences that engage students’ own perceptions of the world around them. Through site visits to Yale museums, libraries, and labs we also analyze the sensory world of science through historical scientific objects, images, and instruments, as well as contemporary spaces of experiment and observation. WR, HU

HSHM 206a / HIST 114a, History of Reproductive Health and Medicine in the U.S. Staff
This course surveys the history of reproductive health and medicine in the United States from the late eighteenth century to the present. The course emphasizes the cultural and historical contexts of reproductive health; the significance of reproduction within the broader social, cultural, and political history of the United States; and the entanglements of reproductive medicine with social and political categories of race, gender, disability, nation, and kinship. Topics include the management of reproduction in U.S. slavery and empire, reproductive medicine and concepts of race, practitioners and professional authority over childbearing and pregnancy, eugenics and sterilization, movements for reproductive rights and healthcare, reproductive biotechnology, and present-day disparities in access to and quality of reproductive care. HU o Course cr

HSHM 226b / HIST 236b, The Age of the Scientific Revolution Ivano Dal Prete
The material, political, cultural, and social transformations that underpinned the rise of modern science between the 14th and 18th century, considered in global context. Topics include artisanal practices and the empirical exploration of nature; global networks of knowledge and trade; figurative arts and the emersion of a visual language of anatomy, astronomy, and natural history. HU o Course cr

HSHM 238b / ANTH 221b / HIST 133b, The History of Drugs in America Marco Ramos
Virtually every American today “does” drugs. As a nation, our drug use ranges from everyday activities, such as drinking coffee or beer, to combating illnesses with prescription medications, to using illegal drugs for recreation. This course follow a loose chronology beginning in the early twentieth century and ending in the present day. Instead of focusing on the biography of a single drug, or class of drugs, this course incorporates a wide range of substances, including alcohol, cigarettes, pharmaceuticals, psychedelics, and narcotics. Through a selection of essays, book chapters, and primary source material, we discuss how certain ways of using and selling drugs have been sanctioned and encouraged, while others have been pathologized as addiction or criminalized. We explore how drug definitions are constructed, how they shift over time, and how they reflect, reinforce, and sometimes challenge anxieties about race, disability, sexuality, and gender. Throughout the course, films, images, music, and television episodes are also presented as objects of analysis to provide insight into the cultural lives of drugs. We explore how historians approach this subject, assess their sources and assumptions, and consider the choices they have made in researching and writing. Students are expected to apply these historical lessons to the present and demonstrate the ability to think and write critically about the history of drugs. Students
previously enrolled in HSHM 488, The History of Drugs in 20th Century America, are not eligible to enroll in this course. **HU, SO**

**HSHM 241b / AFAM 170b / HIST 479b / WGSS 270b, Sickness and Health in African American History**  Carolyn Roberts

A history of American medicine through the African American experience covering the period of slavery through #BlackLivesMatter. Oriented around the complex dynamics of medical abuse and medical resistance, key themes include medicine and slavery; gender and reproduction; medical experimentation and ethics; the rise of racial science; lynching and vigilante violence; segregation and public health; African-descended approaches to health and healing; the rise of the African American medical profession; and black health activism from slavery to #BlackLivesMatter. **HU o Course cr**

**HSHM 321a / HIST 244a, Cultures of Western Medicine**  Staff

A survey of Western medicine and its global encounters, encompassing medical theory, practice, institutions, and healers from antiquity to the present. Changing concepts of health, disease, and the body in Europe and America explored in their social, cultural, economic, scientific, technological, and ethical contexts. **HU o Course cr**

* **HSHM 406a / HIST 150Ja, Healthcare for the Urban Poor**  Sakena Abedin

Exploration of the institutions, movements, and policies that have attempted to provide healthcare for the urban poor in America from the late nineteenth century to the present, with emphasis on the ideas (about health, cities, neighborhoods, poverty, race, gender, difference, etc) that shaped them. Topics include hospitals, health centers, public health programs, the medical civil rights movement, the women's health movement, and national healthcare policies such as Medicare and Medicaid. **WR, HU**

* **HSHM 407b / HIST 289Jb / HSAR 399b / HUMS 220b, Collecting Before the Museum**  Paola Bertucci

A history of museums before the emergence of the modern museum. Focus on: cabinets of curiosities and Wunderkammern, anatomical theaters and apothecaries’ shops, alchemical workshops and theaters of machines, collections of monsters, rarities, and exotic specimens. **WR, HU**

* **HSHM 409b / HIST 197Jb, Marriage and Medicine in Modern America**  Kelly O’Donnell

This seminar explores histories of health, gender, and sexuality, by focusing on the intertwining of two institutions that have fundamentally shaped our culture: medicine and marriage. It uses marriage as a lens for viewing the historical and social transformations of the American medical profession, as well as to examine the medicalization of intimate relationships in the broader society. Weekly readings cover topics such as: eugenics, LGBTQ marriage and adoption, disability rights, sexuality and reproduction, sex education, health activism, the changing gender composition of the health professions, and the reform of medical education and training. Students also analyze a variety of primary sources, ranging from scientific studies and medical advice literature to popular magazines and romantic comedy films. **WR, HU**

* **HSHM 410a / RLST 195a / WGSS 195a, Meanings of Life**  Evan Goldstein

What are the meanings of life? That is, what are we talking about when we talk about life, and how did we come to talk about it in this way? Is life religious or secular? What does Christianity (still) have to do with the politics of life and death? This course takes up these questions, among others. We trace the history of life as a concept in
Western thought, with a particular emphasis on the afterlife of the Christian tradition in secular modernity. Beginning with the theories of biopolitics developed by Hannah Arendt and Michel Foucault, we explore the implications of life’s centrality for modern formations of race, sexuality, and death. This course is not a survey of how different religious traditions define life; rather, by engaging with thinkers from Religious Studies, Black Studies, queer theory, science and technology studies, among other fields, we explore the theological and political dimension of life in modern Western societies. After spending several weeks covering some of the canonical theorists of biopolitics, we take on a series of more recent case studies and thinkers who have addressed some of the urgent issues of our time through a critical scrutiny of the meanings of life. Topics include secularization and sovereignty, the biopolitics of race and sexuality, the precarious status of life in pandemic times, and death. Readings are primarily composed of twentieth-century theorists, including Giorgio Agamben, Donna Haraway, Lauren Berlant, and Talal Asad, as well as relevant historical precursors and examples. No prior experience is presumed, and all texts will be read in translation.

* HSHM 412b / HIST 429Jb, Laboratory Life  Chitra Ramalingam
The laboratory is the iconic space of modern science, where unruly nature is tamed and controlled, and scientific facts are made. Through historical, ethnographic, and sociological approaches to lab science, this course explores how an obscure, secretive site for managing alchemical labor in medieval Europe became the globally dominant mode of producing universal experimental knowledge across the modern sciences. We consider issues of labor, skill and class; gender and race; pedagogy and the politics of profession; state, industrial, and corporate laboratories; secrecy and openness; place and geography; and the implication of labs in geopolitical webs of power, inequality, and exploitation. Undergraduate enrollment limited to juniors and seniors.

* HSHM 414a / CLCV 330a, Ancient Medicine and Disease  Jessica Lamont
This seminar examines the concepts of medicine, healing, and disease in communities of the ancient Mediterranean and beyond, in light of the modern fields of pathology, surgery, pharmacology, therapy, gynecology, obstetrics, psychology, anatomy, medical science, ethics, and education. Primary regions of focus include ancient Mesopotamia, Egypt, Greece, and Rome, though students have the opportunity to focus more broadly (for example, ancient China, Mesoamerica, India) in individual presentations and research papers. Students (1) gain a better understanding of the foundations of Western medicine and (2) an appreciation for how medical constructs and practices take on different meanings over time, as science and society evolve in tandem. Course material is a combination of primary and secondary readings, all in English.

* HSHM 417b, Before the Anthropocene: Global Environment in the Preindustrial World  Ivano Dal Prete
This seminar explores the cultural history of climate change, environmental catastrophes, and human agency over nature in the pre-industrial world. Students discuss scientific theories, religious beliefs, economic imperatives, and ideological and gender prisms that paved the way for an era of unprecedented exploitation of the Earth’s resources and environment. Special emphasis is placed on the study of visual and material primary sources at the Beinecke and other venues on campus.
* HSHM 419a / AFST 411a / HIST 163Ja, Madness and Decolonization  Marco Ramos
This seminar traces the history of psychiatry through its encounters and entanglements with colonial and postcolonial power. We begin with a discussion of how psychiatry has been used as an imperial tool of control in the 18th and 19th centuries. We pay particular attention to colonial scientific encounters with Indigenous and enslaved people, and how the psychiatric pathologization of Indigeneity and Blackness informed the construction of settler European whiteness. Then, we move to decolonization in the twentieth century to explore the emergence of international mental health, as former colonies transitioned to independent states. We discuss the attempts of African and Latin American thinkers, such as Frantz Fanon and Ignacio Martín-Baro, to use psychiatry for the liberation of oppressed groups in emerging postcolonial spaces. The seminar finishes with a discussion of the recent emergence of the global mental health movement and calls from former patients, BIPOC and disability activists, and others to “decolonize mental health” so that it serves—rather than harms—those traditionally marginalized by Western psychiatry. Throughout the course, students learn to trace the contours of psychiatry and decolonization through a variety of sources, including movies, music, photography, and monographs.  WR, HU

* HSHM 420a, Senior Project Workshop  Chitra Ramalingam
A research workshop for seniors in the HSHM major, intended to move students toward the successful completion of their senior projects and to provide a community for support and for facilitated peer review. Meets periodically throughout the semester for students to discuss stages of the research process, discuss common challenges and practical strategies for addressing them, and to collaboratively support each others' work. The workshop events are structured around the schedule for the fall-to-spring two-term senior project, but students writing one-term projects or spring-to-fall projects also benefit from them, and there will be at least one peer review session to support their key deadlines each semester too. Students must be seniors in the HSHM major and must be signed up for HSHM 490, 491, or 492 to take this course.  ½ Course cr

* HSHM 429b / HIST 490Jb, Decolonizing the Mind  Nana Osei Quarshie
This seminar explores the effects of colonialism and post-colonial power relations on the production of scientific, medical, and embodied knowledge about psychiatry. First, we read debates over the geographies of power and distrust in medicine. How have colonialism and post-colonial power relations defined the tasks of non-European psychiatry? What does it mean to decolonize psychiatric practice or culture? Second, we examine the nature of rationality. Is reason singular, plural, or culturally bound or universal? To what extent is spirit possession a rational experience? Third, we explore the relationship between scientific representations, social practices, and local culture. What relationship exists between social practices and culturally shared categories of knowledge? Is psychiatry universalizable? Students learn to analyze and debate these questions by drawing on films, letters, photography, and monographs produced in and about Algeria, Argentina, Brazil, China, Cuba, Indonesia, and Vietnam.  WR, HU, SO

* HSHM 432a / ER&M 360a / HLTH 370a / SOCY 390a / WGSS 390a, Politics of Reproduction  Rene Almeling
Reproduction as a process that is simultaneously biological and social, involving male and female bodies, family formation, and powerful social institutions such as medicine, law, and the marketplace. Sociological research on reproductive topics such
as pregnancy, birth, abortion, contraception, infertility, reproductive technology, and aging. Core sociological concepts used to examine how the politics of reproduction are shaped by the intersecting inequalities of gender, race, class, and sexuality.

* HSHM 446a / HIST 263Ja, Contested Bodies: Histories of Health, Sex and Sport
  Madeleine Ware
  This class deconstructs idealized images of ‘health’ in medical and popular culture by examining various historical moments when diagnoses and conceptions of the body were made around ideas of sex, gender, reproduction, and race. We especially focus on moments of contestation over body compositions/physiologies that defined civic and social belonging. We constantly work to place these representations of health in conversation with the lived experiences our historical actors and individual senses of health, sickness, pain, and ability.

* HSHM 448a / HIST 177Ja / WGSS 448a, American Medicine and the Cold War
  Naomi Rogers
  The social, cultural, and political history of American medicine from 1945 to 1960. The defeat of national health insurance; racism in health care; patient activism; the role of gender in defining medical professionalism and family health; the rise of atomic medicine; McCarthyism in medicine; and the polio vaccine trials and the making of science journalism.

* HSHM 449b / EVST 349b / HIST 449Jb / URBN 382b, Critical Data Visualization: History, Theory, and Practice
  Bill Rankin
  Critical analysis of the creation, use, and cultural meanings of data visualization, with emphasis on both the theory and the politics of visual communication. Seminar discussions include close readings of historical data graphics since the late eighteenth century and conceptual engagement with graphic semiology, ideals of objectivity and honesty, and recent approaches of feminist and participatory data design. Course assignments focus on the research, production, and workshopping of students’ own data graphics; topics include both historical and contemporary material. No prior software experience is required; tutorials are integrated into weekly meetings. Basic proficiency in standard graphics software is expected by the end of the term, with optional support for more advanced programming and mapping software.

* HSHM 453a / E&EB 336a / HUMS 336a, Culture and Human Evolution
  Gary Tomlinson
  Examination of the origins of human modernity in the light of evolutionary and archaeological evidence. Understanding, through a merger of evolutionary reasoning with humanistic theory, the impact of human culture on natural selection across the last 250,000 years.

* HSHM 467b / HIST 447Jb, History of the Body
  Ziv Eisenberg
  What does it mean to have a “bad hair day?” How should you care for your skin? What happens when you eat a burger and drink wine? How are babies made? What happens when you die? The answers depend not only on who provides them, but also on where and when. This seminar examines historical production of systems of corporeal knowledge and power, as well as the norms, practices, meanings, and power structures they have created, displaced, and maintained. Structured thematically, the course familiarizes students with major topics in the history of the body, health, and medicine, with a particular focus on US history.
* HSHM 468a / HIST 260Ja, Sex, Life, and Generation  Ivano Dal Prete
Theories and practices of life, sex, and generation in Western civilization. Politics and policies of conception and birth; social control of abortion and infanticide in premodern societies; theories of life and gender; the changing status of the embryo; the lure of artificial life. WR, HU

* HSHM 469a / MCDB 469a, Biology of Humans through History, Science, and Society  Valerie Horsley and Carolyn Roberts
This course is a collaborative course between HSHM and MCDB that brings together humanists and scientists to explore questions of biology, history, and identity. The seminar is intended for STEM and humanities majors interested in understanding the history of science and how it impacts identity, particularly race and gender, in the United States. The course explores how scientific methods and research questions have impacted views of race, sex, gender, gender identity, heterosexism, and obesity. Students learn and evaluate scientific principles and concepts related to biological theories of human difference. There are no prerequisites, this class is open to all. WR, HU, SC

HSHM 470a or b, Directed Reading  Staff
Readings directed by members of the faculty on topics in the history of science, medicine, or public health not covered by regular course offerings. Subjects depend on the interests of students and faculty. Weekly conferences; required papers.

* HSHM 472a / FILM 393a / HSAR 405a / HUMS 246a, Early Modern Media  Marisa Bass and John Peters
How did ideas move in the early modern world across time and place, between people and things? Looking beyond art history's traditional understanding of “medium” as referring to what a work of art is made from, this seminar explores the broader range of “media” that were central to discourse and debates about faith, politics, and the natural world during a period of great technological innovation and global expansion, as well as violence, upheaval, and uncertainty. Focusing on Dutch art, science, and thought during the long seventeenth century—a context in which experiments with media at home and encounters with media from abroad were especially charged, our discussions range from optics to navigation, theology to mathematics, landscape to microscope, clocks to cannons, and shells to flowers. Readings both historical and theoretical complement several visits to study works firsthand in nearby collections. HU

* HSHM 473b / HIST 403Jb, Vaccination in Historical Perspective  Jason Schwartz
For over two centuries, vaccination has been a prominent, effective, and at times controversial component of public health activities in the United States and around the world. Despite the novelty of many aspects of contemporary vaccines and vaccination programs, they reflect a rich and often contested history that combines questions of science, medicine, public health, global health, economics, law, and ethics, among other topics. This course examines the history of vaccines and vaccination programs, with a particular focus on the 20th and 21st centuries and on the historical roots of contemporary issues in U.S. and global vaccination policy. Students gain a thorough, historically grounded understanding of the scope and design of vaccination efforts, past and present, and the interconnected social, cultural, and political issues that vaccination has raised throughout its history and continues to raise today. HU
History of Science, Medicine, and Public Health

* HSHM 475b / HIST 128Jb, Race and Disease in American Medicine  Sakena Abedin
An exploration of the history of race and disease in American medicine from the late 19th century to the present, focusing on clinical practice and clinical research. We discuss cancer, psychiatric disease, sickle cell disease, and infectious diseases including tuberculosis and HIV. We examine the role of race in the construction of disease and the role of disease in generating and supporting racial hierarchies, with special attention to the role of visibility and the visual in these processes. We also consider the history of race and clinical research, and the implications of racialized disease construction for the production of medical knowledge.  WR, HU

* HSHM 476a / ENGL 248a / HUMS 430a / LITR 483a / PHIL 361a, Thought Experiments: Connecting Literature, Philosophy and the Natural Sciences  Paul Grimstad
The course looks closely at the intersection of literature, philosophy and natural science through the lens of the thought experiment. Do thought experiments yield new knowledge about the world? What role does narrative or scene setting play in thought experiments? Can works of literary fiction or films function as thought experiments? Readings take up topics such as personal identity, artificial intelligence, meaning and intentionality, free will, time travel, the riddle of induction, “trolley problems” in ethics and the hard problem of consciousness. Authors may include Mary Shelley, Plato, Albert Einstein, Franz Kafka, H.G. Wells, Rene Descartes, Kazuo Ishiguro, Rivka Galchen, Alan Turing, Hilary Putnam, as well as films (The Imitation Game) and television shows (Black Mirror). Students should have taken at least one course involving close analysis of works of literature or philosophy.  WR, HU

* HSHM 482a / HIST 291Ja / PHYS 105a, Electromagnetism: Physics, Magic, Religion  Alison Sweeney and Paola Bertucci
Electromagnetism is a foundational topic in scientific education. Its laws are crucial milestones for students interested in the hard as well as the life sciences; however, these topics can be challenging to learn and teach in our modern context of ubiquitous, miniaturized electronics. In contrast, in the nineteenth century, when most electromagnetic laws were codified, electromagnetism was anything but a dry science. The then-novel phenomena seemed to offer physical reality to occult practices and religious beliefs. This seminar offers scientific content in historical context. Students learn the physical theories of electromagnetism while entering the world of Victorian science and its paradoxes.  HU

* HSHM 486a / AFST 486a / HIST 374Ja, African Systems of Thought  Nana Osei Quarshie
This seminar explores the effects of colonialism and post-colonial power relations on the production of scientific, medical, and embodied knowledge about Africa. The course focuses on three broad themes covered across four units. First, we read debates over the nature and definition of science and tradition. How have colonialism and post-colonial power relations defined the tasks of an African science? What does it mean to decolonize African thought or culture? Second, we examine the nature of rationality. Is reason singular or plural? Culturally-bound or universal? To what extent are witchcraft, African healing practices, and ancestor veneration rational practices? Is there a “traditional” rationality? Third, we explore the relationship between scientific representations, social practices, and local culture. What relationship exists between
social practices and culturally shared categories of knowledge? Lastly, we examine the intersection of capital and medical expertise. How have shifting conceptions of value and capital, reshaped scientific and medical authority in Africa?  WR, HU

* HSHM 489b / HIST 109Jb, Activism and Advocacy in the History of American Health Care  Kelly O’Donnell

Is health care a human right? Can health advocacy shape health policy? What does it mean to be a health “activist” and to demand change of medicine? Health care in America has always been political. In this seminar students explore the rich history of health activism and health advocacy in the modern United States, focusing primarily on the postwar period through the present day. Each week we encounter new varieties of grassroots organizing, individual activists, and advocacy organizations that have made political claims about health care and pushed for its reform. We examine how health activism shapes broader cultural conversations about health and the practice of medicine itself. This course does not aim to provide a comprehensive history of health activism in modern America, but rather takes a case study approach, for critical analysis of themes and tactics. For each session, students read a selection of essays, book chapters, or primary source materials about a particular variety of health activism. Through these readings, we discuss how the critiques of activists and the responses by medical practitioners reveal the significant impact of race, gender, class, and sexuality on the provision of health care in this country. We also consider how historians have approached this subject, both as scholars and participant-observers. Students become adept at primary source analysis and able to engage in scholarly conversations with secondary sources.  WR, HU

* HSHM 490a or b and HSHM 491a or b, Yearlong Senior Project  Staff

Preparation of a yearlong senior project under the supervision of a member of the faculty. There will be a mandatory meeting at the beginning of the term for students who have chosen the yearlong senior project; students will be notified of the time and location by e-mail before classes begin. Majors planning to begin their projects who do not receive this notice should contact the senior project director. Students expecting to graduate in May enroll in HSHM 490 during the fall term and complete their projects in HSHM 491 in the spring term. December graduates enroll in HSHM 490 in the spring term and complete their projects in HSHM 491 during the following fall term. Majors planning to begin their projects in the spring term should notify the senior project director by the last day of classes in the fall term. Students must meet progress requirements by specific deadlines throughout the first term to receive a temporary grade of SAT for HSHM 490, which will be changed to the grade received by the project upon the project’s completion. Failure to meet any requirement may result in the student’s being asked to withdraw from HSHM 490. For details about project requirements and deadlines, consult the HSHM Senior Project Handbook. Students enrolled in HSHM 491 must submit a completed project to the HSHM Registrar no later than 5 p.m. on the due date as listed in the HSHM Senior Project Handbook. Projects submitted after 5 p.m. on the due date without an excuse from the student’s residential college dean will be subject to grade penalties. Credit for HSHM 490 only on completion of HSHM 491.

* HSHM 492a or b, One-Term Senior Project  Staff

Preparation of a one-term senior project under the supervision of an HSHM faculty member, or of an affiliated faculty member with approval of the director of
undergraduate studies. There will be a mandatory meeting at the beginning of the term for students who have chosen the one-term senior project; students will be notified of the time and location by e-mail before classes begin. Majors planning to begin their projects who do not receive this notice should contact the senior project director. Students expecting to graduate in May enroll in HSHM 492 during the fall term. December graduates enroll in HSHM 492 in the preceding spring term. Students planning to begin their project in the spring should notify the senior project director by the last day of classes in the fall term. Majors must submit a completed Statement of Intention form signed by the faculty member who has agreed to supervise the project to the HSHM administrator on the due date. Blank statement forms are available in the HSHM Senior Project Handbook on the HSHM website. Students enrolled in HSHM 492 must submit a completed senior project to the HSHM administrator as listed in the HSHM Senior Project Handbook no later than 5 p.m. on the due date in the fall term, or no later than 5 p.m. on the due date in the spring term. Projects submitted after 5 p.m. on the due date without an excuse from the student’s residential college dean will be subject to grade penalties.

* HSHM 493a / AMST 302a / ER&M 312a / WGSS 312a, Technology, Race and Gender  Kalindi Vora

In this course, we discuss technology and the politics of difference through a survey of topics including artificial intelligence, digital labor (crowdsourcing), and robotics and computer science. Materials for study include humanistic and social scientific critique, ethnographies of technology, technical writing and scientific papers, as well as speculative art practices including design, visual art and fiction. What assumptions and politics of imagination govern the design and development of new technologies? What alternative imaginaries, politics, or even speculations, can be identified with a feminist analytic lens? The seminar also includes a practicum component where we practice the politics of speculation through writing and design projects. To do this we study everything from active STEM projects at Yale to speculative fiction and film to think about how structures of race, gender, sexuality, ability, nation, and religious difference inform how we "speculate" or imagine the future through the ways we design and build technological worlds in practice and in fiction. HU, SO

* HSHM 496b / HIST 110Jb, Childbirth in America, 1650-2000  Rebecca Tannenbaum

This course considers the ways childbirth has been conducted in the United states over three centuries. Topics include the connections between childbirth and historical constructions of gender, race, and motherhood, as well as changes in the medical understanding and management of childbirth. WR, HU

* HSHM 497a / HIST 190Ja, Technology in American Medicine from Leeches to Surgical Robots  Kelly O’Donnell

From leeches to robot-assisted surgery, technology has both driven and served as a marker of change in the history of medicine. Using technology as our primary frame of analysis, this course focuses on developments in modern medicine and healing practices in the United States, from the nineteenth century through the present day. How have technologies, tools, and techniques altered medical practice? Are medical technologies necessarily “advances?” How are technologies used to “medicalize” certain aspects of the human experience? In this class we focus on this material culture of medicine,
particularly emphasizing themes of consumerism, expertise, professional authority, and gender relations. WR, HU