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 structure, 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 in the slave trade, 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 the media in modern America; the development of the earth and environmental sciences; nuclear weapons and electronic computers; 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 Carolyn Roberts, Nana Quarshie

Lecturers Sakena Abedin, Ivano Dal Prete, Chitra Ramalingam, Miriam Rich

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 005a / HIST 006a, Medicine and Society in American History  Rebecca Tannenbaum
Disease and healing in American history from colonial times to the present. The changing role of the physician, alternative healers and therapies, and the social impact of epidemics from smallpox to AIDS. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program.  WR, HU

* 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 206b / HIST 114b, History of Reproductive Health and Medicine in the U.S.  Kelly O'Donnell
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

HSHM 207b / AMST 236b / EVST 318b / HIST 190b, American Energy History  Paul Sabin
The history of energy in the United States from early hydropower and coal to present-day hydraulic fracturing, deepwater oil, wind, and solar. Topics include energy transitions and technological change; energy and democracy; environmental justice and public health; corporate power and monopoly control; electricity and popular culture; labor struggles; the global quest for oil; changing national energy policies; the climate crisis.  WR, HU

HSHM 211b / EPS 211b / EVST 211b / HIST 416b, Global Catastrophe since 1750  Bill Rankin
A history of the geological, atmospheric, and environmental sciences, with a focus on predictions of global catastrophe. Topics range from headline catastrophes such as global warming, ozone depletion, and nuclear winter to historical debates about the age of the Earth, the nature of fossils, and the management of natural resources. Tensions between science and religion; the role of science in government; environmental economics; the politics of prediction, modeling, and incomplete evidence.  HU
HSHM 217a / AMST 215a / HIST 485a / HUMS 219a, Biomedical Futures and Michael Crichton's Monsters
Joanna Radin

What forms of life have been produced by modern science? The literal life-changing technologies that began to emerge after the Second World War also provoked new anxieties. They expressed themselves in the speculative fiction of Michael Crichton in terms of monsters: the virus in The Andromeda Strain, the androids in Westworld, the velociraptors of Jurassic Park, and even the patients maimed by gunshot wounds in ER. Crichton wrote thrilling stories that also asked his readers to consider what monsters humans could make if they didn’t stop to consider whether or not they should. This course examines the emergence of modern life science to consider what it would take to produce more life-sustaining futures. HU, SO, O, Course cr

HSHM 226a / HIST 236a, 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 406b / HIST 150Jb, 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 407a / HIST 289Ja / HSAR 399a / HUMS 220a, Collecting Nature
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 412a / HIST 429Ja, 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. WR, HU

* HSHM 419a / 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-Baró, 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 422a / HIST 467Ja, Cartography, Territory, and Identity
Bill Rankin

Exploration of how maps shape assumptions about territory, land, sovereignty, and identity. The relationship between scientific cartography and conquest, the geography of statecraft, religious cartographies, encounters between Western and non-Western cultures, and reactions to cartographic objectivity. Students make their own maps. No previous experience in cartography or graphic design required. WR, HU

* HSHM 449b / HIST 449Jb, 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 semiotics, 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. HU

* HSHM 468b / HIST 260Jb, 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 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 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  

* HSHM 474a / HIST 331Ja / WGSS 474a, Reproductive Politics & Neoliberalism in Latin America: 1970s – Present  Emilie Egger  
This seminar provides an introduction to the history of modern Latin America through the lens of reproductive politics. Historians such as Laura Briggs (2017) use this framework to address the interplay of public and private forces on the material lives of individuals, their families, and communities and how they interpret these circumstances. We examine key events in Latin American history alongside trends in family patterns, the many variations of eugenic policy, and political and social organizing around issues of reproduction throughout Latin America from the 1970s to the present, using the interdisciplinary definition of eugenics proposed by historian Nancy Leys Stepan (1991): "...first, as a science of heredity that was shaped by political, institutional, and cultural factors particular to the historical moment and place in which it appeared; and, second, as a social movement with an explicit set of policy proposals." Moreover, we critically examine how people in Latin America define kinship within these frictions. Scholar Aihwa Ong writes that as political and economic networks are being rearranged, "new kinds of humanity are in emergence" (2006).  

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 477b / HIST 428Jb / HUMS 463b / RLST 437b, Critical Theories of Science and Religion  Noreen Khawaja and Joanna Radin  
This course is an introduction to new thinking about the relationship of science and religion in global modernities. Drawing from work in feminist and indigenous studies, critical race theory, postcolonial studies, and multispecies thought, we explore systematic questions at the intersection of metaphysics, history of science, and politics. How can attending to the role of practice alter our understanding of how knowledge is produced across scientific and religious worlds? What is a world, and who gets to define it? How might a new contract between science and religion reveal fresh possibilities for an ethical response to late capitalism: addressing historic exclusions, structural inequalities, and human-nonhuman relations? Readings may include: Bruno Latour, Donna Haraway, Kim TallBear, Anna Tsing, Isabella Stengers, Cathy Gere, Mary-Jane Rubenstein, Karen Barad, Robert Bellah, Elizabeth Povinelli, Nadia Abu El-Haj, Aicha Beliso-De Jesus, Marilyn Strathern, Catherine Keller, Abou Farman, Webb Keane.  

* HSHM 481a / AFAM 213a / AFST 481a / HIST 383Ja, Medicine and Race in the Slave Trade  Carolyn Roberts  
Examination of the interconnected histories of medicine and race in the slave trade. Topics include the medical geography of the slave trade from slave prisons in West Africa to slave ships; slave trade drugs and forced drug consumption; mental and physical illnesses and their treatments; gender and the body; British and West African medicine and medical knowledge in the slave trade; eighteenth-century theories of racial difference and disease; medical violence and medical ethics.  

WR, HU  

* HSHM 486b / AFST 486b / HIST 374Jb, African Systems of Thought  Nana Osei Quashie  
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 488b / HIST 153Jb, The History of Drugs and Addiction in Twentieth Century 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 follows 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, and narcotics. For each session, students read a selection of essays, book chapters, and primary source material. Through these readings, 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 definitions of addiction are constructed, how they shift over time, how they affect (and are affected by) people who use, sell, and regulate drugs. We also trace how the medicalized concept of “addiction” emerged in the twentieth century and how this concept intersected with societal anxieties about race, immigration, indigeneity, and gender. Throughout the course, films, images, music, and television episodes are presented as objects of analysis to provide insight into the cultural lives of drugs. As a group, we discuss how historians have approached this subject, assess their sources and assumptions, and consider the choices they have made in researching and writing. Students are expected to apply these lessons and demonstrate the ability to think and write critically about the history of drugs. WR, HU

* HSHM 489a / HIST 109Ja, 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 211 HGS no later than 5 p.m. on April 6, 2018, in the spring term, or no later than 5 p.m. on December 1, 2017, in the fall 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. 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 term 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 no later than September 9, 2019 (HSHM 492a), or January 17, 2020 (HSHM 492b). 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 no later than 5 p.m. on December 2, 2019, in the fall term, or no later than 5 p.m. on April 6, 2020, 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 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