

SCIENCE & TECHNOLOGY IN MODERN MEDICINE

HIST 381 Honors

SPRING 2025 SYLLABUS

Prof. Stephen Pemberton

Federated Department of History
New Jersey Institute of Technology

Class Meetings

8:30 – 9:50 AM Tuesdays and Fridays
Central King Building 212 (CKB 212)

Office Hours

Fridays 10:00-11:30 AM and by individual appointment

Office & Contact

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This history course examines the critical roles of science and technology in modern medicine by looking at how medicine has developed in predominantly social, cultural and political terms. Readings, lectures, and discussion focus on specific innovations in ideas, practices, and technologies that helped transform Western medicine in the 19th and 20th centuries and render it “modern.” Of particular focus will be the extent to which medicine is or has been scientific; the ways science became vital to the medical and health professions; and the degrees to which the professional cultures of medicine and the biomedical science both mirror and inform attitudes toward the human body in Western society and culture. The lectures and readings will allow us to link interactions between medicine, science and culture to the changing social and political economies of health care in North America and Europe, and analyze a variety of issues, including the growing role of technology in medicine, the integral relationship between medicine and public health in the modern world, the roles of business and government in advancing health care, and the historical effects of specific disease problems for the advancement of science-based healing. Throughout the course, special attention will be paid to how issues of class, race and ethnicity, and gender have impacted cultural understandings of the body, disease and health as well as interactions between medical professionals, scientists, industry, government, and the public.

Learning Outcomes

By the end of the course, students will be able to:

- *Identify* and *correlate* key historical actors and events in North America and Western Europe and how they have shaped and influenced medicine, science, technology, and society across the globe from the mid-nineteenth century to the present.
- *Identify* and *describe* various developments and controversies related to medicine, medical science and technologies of the last two centuries, and *explain* how medical practitioners have approached the challenges of improving the health of individuals and populations for better and/or worse.
- *Describe* and *begin to explain* how scientific and medical developments in a modernizing world are embedded in a social context: meaning that each student will learn that “social factors” such as class, race, and gender not only impact our understandings of the body, disease, and health, but that these features of social experience also frequently impinge upon how medical developments unfold as well as how medicine is practiced (in its dimensions as both art and science).
- *Write* effective essays that *describe* and critically *evaluate* the merits of a certain argument in a specific place and time, even if the vexing issues involved are (in some sense) irresolvable.
- *Demonstrate* information literacy consistent with being an upper-level undergraduate: including (1) locating, retrieving and evaluating information relevant to the writing of a college-level argumentative essay; (2) organizing, synthesizing and communicating that information in clear, persuasive prose; and (3) producing a finished essay that employs principles consistent with the ethical and legal uses of information.

Prerequisites and Honors Credit

Grade C or better in ENG 102 and a 200-level Humanities or History course or their equivalents.

This class is designated as an honors class. However, this course is open to any student with the instructor’s permission.

Course Webpage (Canvas)

There is a Canvas webpage for this course that the professor and class will utilize throughout the semester. The course webpage contains the syllabus, assignments, readings, and other features that will enhance your learning experience this semester. Please consult this website regularly, preferably at least once before every class meeting.

Canvas access [here](#) with your UCID.

Class Meetings & Office Hours

Class meetings will take place in person.

My office hours are Fridays 10-1130 a.m. in Cullimore 329. I also hold office hours by appointment during weekday business hours. Please email me at least 24 hours in advance for an appointment.

Virtual meetings are also available by request. They take place via Zoom in the Professor's Personal Meeting Room. (Zoom link available within Canvas.)

Readings.

The required readings for this course include one book and a variety of shorter readings. Students should follow the semester schedule to determine what readings to complete for each class period.

Short Readings: Short readings include scholarly essays, articles, or book chapters alongside newspaper or magazine articles. These will be posted on Canvas as pdfs.

Book: The following book is required reading in this course. Copies are available at the [NJIT Campus bookstore](#) or [through on-line booksellers](#). Audiobook and electronic versions can be purchased as well. Please acquire the book by April 1. Discussion of the book begins April 4.

- Rebecca Skloot, *The Immortal Life of Henrietta Lacks* (Crown Publishing Group, 2010)
[ISBN # 9781400052189](#)

Assignments and Grading

The primary goal of this course is to promote critical thinking and literacy about medicine and society, both past and present. All students will be evaluated on their written and oral communication over the course of the semester. This requires that you do the reading and writing assignments dutifully. In addition to in-class participation, the student will write essays and complete quizzes as designated on the course webpage.

<u>Assignments</u>		<u>Grading Scale for Assignments</u>	
Participation	15%	A =	89.5 to 100
Quizzes	10%	B+ =	86.5 to 89.4
In-Class Writing	10%	B =	79.5 to 86.4
Midterm Exam	20%	C+ =	76.5 to 79.4
Essay I	20%	C =	69.5 to 76.4
Final Essay	25%	D =	59.5 to 69.4
		F =	59.4 to 0
<hr/> Course Grade			100%
Consistent effort and improvement are weighted heavily in grading.			
Passing this class with a B+ or higher is unlikely without completing each assignment in a timely fashion and regular classroom attendance.			

Participation

The class participation grade will reflect both the student's presence in the classroom and their consistency and improvement in engaging the subject matter across the course. Students should promptly communicate any concerns about their ability to meet the following requirements with the professor. The participation grade is **15%** of the final course grade.

Attendance Policy. This course is taught in person, in a twice a week format. Missing even a single class is not recommended. However, each student is allowed to miss two full class periods without penalty to their participation grade. It is highly recommended that you consult with the professor about any missed class time beyond two absences. Class time missed beyond the two “excused” classes will result in reductions in the student's participation grade (as calculated as a percentage of formal contact hours for the semester). The professor will consider excusing repeat absences under circumstances that can be verified by the Dean of Students Office. See policy on “Student Accommodations” below for further details. Overall, attendance will constitute two thirds of the student’s participation grade.

Student Engagement. The student's verbal and non-verbal engagements with course activities account for the other half of the participation grade. Each student should come to class promptly and regularly, actively listen to the presentations, and be prepared to ask questions and discuss the readings assigned for the day. Students who participate regularly and constructively in discussion will be rewarded with higher grades in their final participation grade. The student must contribute to the learning environment to receive full credit in this area. Meeting the professor in office hours also counts positively toward participation. The professor will consider improvement and other factors in his assessment of each student’s participation grade, and he reserves the right to award extra credit to students who make substantial contributions to the learning environment.

Reading Quizzes

The professor will evaluate the student’s competency at discussing the readings in writing, in part, by assessing student performance on quizzes. These quizzes test knowledge of the assigned reading for the day and/or week. The act of doing these regular quizzes is an important and comparatively easy way for students to see if they are grasping the main subject matter and/or key points from the relevant course reading. Collectively, the quiz grades amount to **10%** of the course grade.

In-Class Writing Assignments

The professor will evaluate the quality of each student’s engagement with the weekly readings and class lectures using written response assignments during class time. The prompts (usually a question or two) will be given in class, and the student will hand write their response on paper. The assignments are completed during class time (unless accommodations for the absence have been verified through the Dean of Students office). There will be at least four in-class assignments over the course of the class, usually announced in advance. See schedule for details. The student’s grade on these assignments is composed of their three best grades in this category. Collectively, the in-class assignments amount to **10%** of the course grade.

Midterm Exam

This in-class written exam will address the course material covered in the first third of the course. The midterm exam equals **20%** of the course grade.

Essay 1

This essay will address a major course theme by focusing on a specific reading and its subject matter. The guidelines for these writing assignments will be distributed on Canvas at least two weeks before the assignment is due. This essay will be used to help the student and professor assess progress in understanding the subject matter and communicating effectively in college-level writing. Essay 1 equals **20%** of the course grade.

Final Essay

This essay will address a major issue or theme in the course related to the student's reading of the required book, *[The Immortal Life of Henrietta Lacks](#)*. The paper topic and guidelines for the writing assignment will be distributed to the class on Canvas no later than three weeks before the assignment is due. The final essay grade amount to **25%** of the course grade.

Reading Advice: Students should acquire the book by April 1 and begin reading by April 4. You can begin reading the book at any point in the course if you prefer not to be reading the book during the last month of the course.

Respect for Persons and the Learning Environment

In the interest of an open exchange of ideas and collegiality, everyone participating in the class should strive to respect their classmates as persons. The professor will make every effort to facilitate a respectful environment for learning, but students should keep in mind their own responsibilities in the classroom.

The professor reserves the right to ask you to leave the classroom for any behaviors that do not meet the expectations of a proper, professional learning environment.

Computer and phone use, web-surfing, texting and social media usage that is unrelated to class is disruptive of a respectful learning environment. Students are therefore expected to limit cell phone, tablet, and lap top use to class-related activities only during our designated class times.

Students must comply with NJIT policy while in the classroom.

Academic Integrity and Plagiarism

Academic integrity is *enforced* in this course. Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Plagiarism and other academic integrity violations are strictly prohibited. As a member of the NJIT community, it is your responsibility to protect our collective educational investment by knowing and following the academic code of integrity policy that is found [here](#).

It is the instructor's professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary

action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu.

Students are also responsible for upholding the integrity of NJIT by reporting any violation of academic to the [Dean of Students Office](#). The identity of the student filing any academic integrity violation will always remain anonymous.

Students are required to submit their original written work to Canvas. When uploading your written assignment to Canvas, that work will automatically be reviewed by **Turnitin.com**, an online service used by NJIT instructors to detect plagiarism and irregularities in sourcing and citation of the written word and claims.

Please consult the professor if you have any concerns about academic integrity, academic reading, writing and citation, plagiarism or their meanings in actual practice.

AI Policy in this Course

To ensure that your written work is original and yours alone, the use of generative artificial intelligence (AI) technologies is **prohibited** in this course.

This course expects students to work without generative artificial intelligence (AI) assistance so that they may appropriately develop the core skills necessary to organize, communicate, and critically evaluate the content they are learning in this humanities-based course.

Any questions about what does or doesn't constitute generative AI use should be directed to the professor in advance of turning in an assignment (not after the assignment is due).

There are a few, highly limited circumstances where it might be reasonable for a particular student to use AI technology for a given assignment – e.g., in the case of a verified disability or reasonable accommodation made through OARS and/or the Dean of Students Office. Should you have a question regarding appropriate use(s) of AI in your particular case, you should raise that matter directly with the professor.

Unauthorized use of AI in this course will be considered an academic integrity violation.

Ethical Research and Writing

NJIT's Van Houghton Library has numerous tutorials to help you succeed in your research and writing in this class. They are designed to ensure you are meeting acceptable standards of ethics as well as scholarship.

The tutorial appropriate to doing acceptable research and writing in a history-based humanities class can be found [here](#).

Tutorials that explain acceptable academic writing for this humanities-based course are available at NJIT's Library website devoted to ENGL 101/102, [here](#).

Tutorials on how to evaluate appropriate online source material can be found [here](#).

Finally, and arguably most critical, tutorials on how to cite sources ethically in your academic writing can be found [here](#).

Citing your sources properly will help you avoid plagiarism. I prefer that students use the author-date citation format from the [Chicago Manual of Style \(CMS\)](#) in their writing for this course.

NJIT's Librarians can field your questions about how the library resources can help you succeed in this history class. They are experts who are happy to help you. **You can reach them via the [Ask A Librarian](#)** link on the library website.

Again, all students are expected to abide by the norms outlined in these websites, this syllabus as well as the Canvas webpage for this class; students can be penalized for failure to do so. Please consult the professor if you have any concerns about academic integrity, academic reading, writing and citation, plagiarism or their meanings in actual practice.

Student Accommodations and Privacy

Instructors can best accommodate a student at the direction of the Dean of Students (DoS) Office. This NJIT policy helps ensure your privacy and accords with U.S. federal law. In other words, students have no obligation to share private, personal information with the instructor to receive accommodation, and instructors have no right to this specific information apart from needing to know that an accommodation is warranted.

If you need accommodation for illness, disability, death in family, religious reasons, etc., University Policy dictates that students should inform the [Dean of Students Office](#). The appropriate information will then be communicated to your instructors without compromising your private information.

You can request absence verification [here](#).

If you wish to have accommodations made for a disability, please contact the [Office of Accessibility Resources & Services \(OARS\)](#) to address your specific needs. A Letter of Accommodation Eligibility from the OARS authorizing your accommodations will be required. Information about accessibility resources and services and forms to initiate accommodation are available [here](#). NJIT policy on accommodations is governed here by the Regulations of the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act.

If you have any further questions regarding accommodation, please consult the DoS webpage devoted to [Frequently Asked Questions](#) to see how you should proceed with your concern.

Changes to syllabus / curriculum

The professor reserves the right to amend or revise the syllabus, specific course content, and/or the schedule. Any changes that occur aim to enhance learning outcomes as the course progresses, and will typically involve cuts of topics, materials or assignments to manage the balance of class time relative to the course workload for all students enrolled in the course.

Semester Schedule

Tues, Jan 21. Interpreting How Science and Technology Made Medicine “Modern” I

In-Class Reading: Lewis Thomas, “The Technology of Medicine” (6 pages)

Wed, Jan 22. Quiz 1 to complete

Fri, Jan 24. Anatomical Knowledge and Modern Medicine

Reading: Ruth Richardson, “The Corpse as an Anatomical Object” (22 pages)

Quiz 2 to complete before class

Tues, Jan 28. Anatomical Knowledge in its Social and Political Messiness, 1820s

Reading: Re-read Richardson, “The Corpse as an Anatomical Object”

In-Class Writing Activity

Fri, Jan 31. William Beaumont, Physiology, and the Ethics of Human Experimentation

Reading: Ronald Numbers, “William Beaumont and the Ethics of Human Experimentation” (23 pages)

Quiz 3 to complete before class

Tue, Feb 4. Hospital Medicine and the Rise of Experimental Medicine

Reading: Claude Bernard, “An Introduction to the Study of Experimental Medicine,” (5 pages)

In-Class Writing Activity

Fri, Feb 7. Hospitalism (Semmelweis & Nightingale)

Reading: Ignaz Semmelweis, “The Etiology, Concept, and Prophylaxis of Childbed Fever,” (7 pages), and Sherwin Nuland, “The Germ Theory Before Germs: The Enigma of Ignaz Semmelweis” (25 pages).

Quiz 4 to complete before class

In-Class Activity – Group A

Tues, Feb 11. What is Germ Theory I?

Reading: Louis Pasteur “On the Extension of Germ Theory to the Etiology of Certain Common Diseases;” and Rom Harré, “Louis Pasteur: The Preparation of Artificial Vaccines.” (21 pages total)

Fri, Feb 14. What is Germ Theory II?

Reading: Joseph Lister, “On the Antiseptic Principle in the Practice of Surgery;” and Robert Koch, “The Aetiology of Tuberculosis.” (21 pages total)

Quiz 5 to complete before class

Tues, Feb 18. How Germs Mattered for Medicine and Surgery: Radical Mastectomy

Reading: Barron Lerner, “Establishing a Tradition: William Halstead and the Radical Mastectomy (25 pages)

Quiz 6 to complete before class

In-Class Activity – Group B

Fri, Feb 21. Interpreting How Science and Technology Made Medicine “Modern” II

Review for Midterm

Tues, Feb 25. Midterm Exam

Fri, Feb 28. How Germs Mattered for Public Health: Immigrant Medical Inspections

Reading: Alan Kraut, “‘Proper Precautions’: Searching for Illness on Ellis Island” (27 pages)

Complete Quiz 7

Tues, Mar 4. Heredity, Genetics, & Eugenics I

Reading: Ruth Schwartz Cowan, “Many Varieties of Beautiful Inheritance” (29 pages)

Complete Quiz 8

Fri, Mar 7. Racial Hygiene and Nazi Medicine

Reading: Robert Proctor, “The Sterilization Law,” (25 pages)

In-Class Writing Activity Possible

Tues, Mar 11. Diabetes and Quality of Life I

Reading: Chris Feudtner, “The Want of Control” (25 pages)

Fri, Mar 14. Interpreting Science and Technology in Medicine I

Reading: Re-read Feudtner, “The Want of Control” (25 pages) and Thomas, “The Technology of Medicine” (6 pages)

In-Class Writing Activity Possible

SPRING BREAK

Tues, Mar 25. Diabetes and Quality of Life II

Reading: Selected contemporary articles on diabetes management

In-Class Writing Activity Possible

Fri, Mar 28. Experimental Surgery in Jim Crow America

In-Class Movie: “Partners of the Heart: A Black Genius, A White Surgeon, A Blue Baby, and a Miracle”

Essay 1 Due

Tues, Apr 1. The Relevance of Race and Gender to Clinical Innovation

Reading: Sherwin Nuland, “The Triumph of Twentieth Century Medicine: Helen Taussig and the Blue Baby Operation” (35 pages)

In-Class Writing Activity Possible

Reminder: Please acquire a copy of Rebecca Skloot’s *The Immortal Life of Henrietta Lacks* by this date.

Fri, Apr 4. The Polio Vaccine

Reading: Begin reading Skloot, *The Immortal Life of Henrietta Lacks*

Tues, Apr 8. The Tuskegee Syphilis Experiment: A National Tragedy in Slow-Motion

Reading: Allan Brandt, “Racism and Research” / Susan Bell, “Events in the Tuskegee Syphilis Project: Timeline” / Primary Sources from Susan Reverby’s *Tuskegee’s Truths* (about 50 pages)

In-Class Activity – Group B

Fri, Apr 11. Sickle Cell Anemia, Medical Racism, and Health Disparities

Reading: Alondra Nelson, “The Spin Doctors” (37 pages)

In-Class Activity – Group A

Tues, Apr 15. The War on Cancer, The AIDS Epidemic, & The Human Genome Project

Reading: Continue reading Skloot, *The Immortal Life of Henrietta Lacks*

Fri, Apr 18. No Class – Good Friday Recess

Tues, Apr 22. The Immortal Life of Henrietta Lacks / Disparities in U.S. Health Care

Reading: Continue reading Skloot, *The Immortal Life of Henrietta Lacks*

In-Class Activities

Fri, Apr 25. The Immortal Life of Henrietta Lacks

Reading: Complete reading Skloot, *The Immortal Life of Henrietta Lacks*

In-Class Activity – Group A

Tues, Apr 29. The Immortal Life of Henrietta Lacks

In-Class Activity – Group B

Fri, May 2. No Class Meeting

Draft your Final Essays

Wed, May 7. Interpreting Science and Technology in Medicine II

In-Class Activity

Attendance Strongly Encouraged

Mon, May 12. FINAL ESSAY DUE