

## **HMED 3075: TECHNOLOGY AND MEDICINE IN MODERN AMERICA**

Fall 2015

Lectures: Mon and Weds 11:15 am – 12:05 pm

Molecular and Cell Biology 2-122

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Office Hours: Mon 1.30 – 3 pm and by appointment

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Teaching Assistant:

### **Discussion Sections:**

Th 11:15 am – 12:05 pm

Th 12:20 pm – 1:10 pm

Fr 11:15 am – 12:05 pm

**Course Summary:** Medicine as it exists in contemporary America is profoundly technological; we regard it as perfectly normal to be examined with instruments, to expose our bodies to many different machines; and to have knowledge produced by those machines mechanically/electronically processed, interpreted and stored. We are billed technologically, prompted to attend appointments technologically, and often buy technologies to protect, diagnose, or improve our health: consider, for example, HEPA-filtering vacuum cleaners; air-purifiers; fat-reducing grills; bathroom scales; blood pressure cuffs; pregnancy testing kits; blood-sugar monitoring tests; and thermometers. Yet even at the beginning to the twentieth century, medical technologies were scarce and infrequently used by physicians and medical consumers alike. Over the course of this semester, we will examine how technology came to medicine's center-stage, and what impact this change has had on medical practice, medical institutions, and medical consumers – on all of us!

**Course Themes:** Below, I've listed some of the relationships that we will examine throughout our readings, lectures and discussions. If you can describe AND ANALYZE examples of one or more of these relationships in each reading, and can compare your chosen examples to others studied across the semester, you will be well-prepared to write your midterm and final exams.

- Technology and the production of medical knowledge;
- Technology and medical professionalization;
- Technology and medical institutions;
- Technology and the patient/consumer;
- Technology and industry;
- Technology and health policy;
- Technology and gender;
- Technology and race.

## REQUIRED TEXTS

Available at Coffman Bookstore

- Joel D. Howell, *Technology in the Hospital: Transforming Patient Care in the Early Twentieth Century* (Johns Hopkins University Press, 1995)

All other assigned readings will be available on **Moodle**:

<https://ay15.moodle.umn.edu/course/view.php?id=4974>

**Please note: Reading assignment should be completed before designated class.** Come to class prepared to answer questions in response to that day's reading assignment.

## COURSE FORMAT AND GRADING

***Class attendance, participation, and group work (20%)***: Regular class attendance and participation in lectures and discussion sections is required for this course. The format of the class on Mondays and Wednesdays is predominantly lectures with some discussion and group activities. The format for sections will be discussion and group activities. You are allowed one unexcused absence after which points for class participation will be deducted. If you are sick, you must email your TA within 24 hours of missing class. If you have a problem that affects your attendance, please let us know in advance or at the time. We want to help you succeed and enable you to make up class work from excused absences.

***Midterm Exam (25%)***: The exam will test students' knowledge and understanding of the material through essay questions drawn from material from the course to date – including lectures, readings and class discussions.

***Final Exam (25%)***: The exam will test students' knowledge and understanding of the material through essay questions drawn from material from the second half of the course (i.e., after the midterm) – including lectures, readings and class discussions.

***Research Paper (30%)***: Students will write a 10-page historical research paper on a medical technology of their choosing. Students will choose their medical technology from a selection of those found in the collections of Wangensteen Historical Library of Biology and Medicine (<http://www.biomed.lib.umn.edu/about/wangensteen>). By conducting additional primary research in archival documents, medical journals, newspapers, and magazines students will describe the introduction of their chosen technology into medical practice. By interpreting these primary documents and situating them in the context of the course readings and lectures, students will make an argument about the influence the introduction of that technology had on medical practice. This might include an assessment of how the technology shaped medical understanding of disease, the patient's experience of disease, or the nature of nursing or physician practice. The teaching assistant will meet with each student, mid-semester, to help students locate appropriate primary source material.

Contact Information for the Wangensteen Library:

Lois Hendrickson: 612-626-6881; [l-hend@umn.edu](mailto:l-hend@umn.edu)

**Please note:** Before visiting either the Wangensteen Library please be sure to contact Lois Hendrickson ahead of time to schedule an appointment.

**Due Dates:**

One paragraph on preliminary research question: **Monday Oct. 19.**

Bibliography of primary and secondary sources: **Wednesday Nov. 18.**

Final Paper: **Wednesday Dec. 16.**

**I will not accept late assignments except in very unusual circumstance and with prior permission.** I would like printed copies of your papers; emailed papers will be accepted only with prior permission in cases of emergency.

**PLEASE NOTE**

- **Plagiarism**, or claiming another's writing as your own (whether it is your roommate's, something off of the internet, or material from a book or article) will result in a failing grade on the assignment involved and a mandatory meeting with me. Please familiarize yourself with the definition of plagiarism available on the Office for Student Conduct and Academic Integrity (OSCAI) website ([www.oscai.umn.edu/content/plagiarism](http://www.oscai.umn.edu/content/plagiarism)) and ways to avoid doing it unintentionally.
- OSCAI's definition of plagiarism:

Plagiarism shall mean representing the words, creative work, or ideas of another person as one's own without providing proper documentation of source.

Examples include, but are not limited to:

- copying information word for word from a source without using quotation marks and giving proper acknowledgement by way of footnote, endnote, or in-text citation;
- representing the words, ideas, or data of another person as one's own without providing proper attribution to the author through quotation, reference, in-text citation, or footnote;
- producing, without proper attribution, any form of work originated by another person such as a musical phrase, a proof, a speech, an image, experimental data, laboratory report, graphic design, or computer code;
- paraphrasing, without sufficient acknowledgment, ideas taken from another person that the reader might reasonably mistake as the author's; and
- borrowing various words, ideas, phrases, or data from original sources and blending them with one's own without acknowledging the sources.

It is the responsibility of all students to understand the standards and methods of proper attribution and to clarify with each instructor the standards, expectations, and reference techniques appropriate to the subject area and class requirements, including group work and Internet use. Students are encouraged to seek out information about these methods from instructors and other resources and to

apply this information in all submissions of academic work. *University of Minnesota Board of Regents Student Conduct Code also, portions used with permission from New York Institute of Technology and University of Texas, San Antonio.*

- **Neatness counts.** Papers with excessive mechanical errors (e.g. typos, poor grammar, frequent misspelt words) or inadequate footnotes and bibliography will not be considered “A” papers, no matter how good the ideas. Be sure to proofread your papers for mechanical and grammatical errors, cite your sources using footnotes, and use proper format on footnotes and bibliographies. Three good ways to check your paper before turning it in: (1) use your computer’s spell check and grammar check functions; (2) read it aloud and look and listen for mistakes; (3) ask a friend to read it for sense and errors; and (4) use the **Student Writing Center** and writing tutors to improve the organization and expression of your ideas.
  - **Student Writing Center**, 15 Nicholson Hall, 612/625-1893 (Make appointments on-line): <http://writing.umn.edu/>
- **Use of cell phones is prohibited** during all class times. Please ensure cell phones are set to “silent” or turned off during class.

## CLASS SCHEDULE

### Week 1

#### Weds 9/9 Introduction

### Week 2

#### Mon 9/14 Assessing Medical Technologies

- Lecture: Medical technologies as artifacts and practices
- Reading: Joel Howell, "Physicians, patients, and medical technology."

#### Weds 9/16 Assessing Medical Technologies

- Lecture: Artifacts as historical sources with Lois Hendrickson, curator, Wangensteen Library

### Week 3

#### Mon 9/21 Technologies in Context

- Lecture: Technologies in context
- Reading: Margarete Sandelowski, "Object lessons." *Devices and Desires: Gender, Technology, and American Nursing* (University of North Carolina Press, 2000)

#### Weds 9/23 Technology and Medical Modernity

- Lecture: The rise of the modern hospital
- Reading: Joel Howell, "Science, scientific systems, and surgery."

### Week 4

#### Mon 9/28 Technology and Clinical Practice

- Lecture: Medical practice in the early 20<sup>th</sup> century
- Reading: Joel Howell, "The changing meaning of urinalysis."

#### Weds 9/30 Planning and Doing a Research Project

- Lecture: How to plan your research project and locate primary sources
- Reading:
  - Joel Howell, "The clinical use of the x-ray machine"
- Primary Sources:
  - "Physician Charles L. Leonard Extolls the Diagnostic Virtues of the New X-Ray Technology, 1897."
  - Editor of Leading Medical Journal Urges "Precautionary X-Ray Examinations," 1912."

### Week 5

#### Mon 10/5 Gendered Technologies, Gendered Practice

- Lecture: Nursing in the early 20<sup>th</sup> century
- Reading: Margarete Sandelowski, "The Physician's Eyes." *Devices and Desires: Gender, Technology, and American Nursing* (University of North Carolina Press, 2000)

### **Weds 10/7 Gendered Technologies, Gendered Practice**

- Lecture: American nursing after World War II
- Reading: Margarete Sandelowski, “Truly and Technically Nursing.” *Devices and Desires: Gender, Technology, and American Nursing* (University of North Carolina Press, 2000)

### **Week 6**

#### **Mon 10/12 Technology and Disease Identity**

- Lecture: Gender, Technology, and Disease in Victorian America
- Reading: Keith Wailoo, “‘Chlorosis’ Remembered: Disease and the Moral Management of American Women.” *Drawing Blood: Technology and Disease Identity in Twentieth Century America* (Johns Hopkins University Press, 1997)

#### **Weds 10/14 Technology and Disease Identity**

- Lecture: Gender, Disease, and Sexuality in Victorian America
  - Artifacts with Lois Hendrickson from the Wangensteen Library
- Reading:
  - Rachel Maines, “The job nobody wanted.” *The Technology of Orgasm: Hysteria, Vibrators, and Women’s Sexual Satisfaction* (Johns Hopkins University Press, 1999)
  - Rachel Maines, “‘Inviting the juices downward.’” *The Technology of Orgasm: Hysteria, Vibrators, and Women’s Sexual Satisfaction* (Johns Hopkins University Press, 1999)

### **Week 7**

#### **Mon 10/19 Diagnosing Race**

- Lecture: Race and Medicine in 19<sup>th</sup> century America
- Reading:
  - Lundy Braun, “Spirometry, Measurement, and Race in the Nineteenth Century.” *Journal of the History of Medicine and Allied Sciences* (2005) 60: 135-169.
- Primary Source:
  - Thomas W. Murrell, M.D. “Syphilis and the American Negro. A Medico-Sociological Study.” *JAMA* (1910) 54: 846-849.

ONE PARAGRAPH ON RESEARCH TOPIC DUE

#### **Weds 10/ 21 Diagnosing Race**

- Lecture: Race and Medicine in 20<sup>th</sup> Century America
- Reading: Ruth Schwartz Cowan, “Genetic Screening and Genocidal Claims.” *Heredity and Hope: The Case for Genetic Screening* (Harvard University Press, 2008)

### **Week 8**

#### **Mon 10/26 Technology and Ethnic Identity**

- Lecture: New Reproductive Technologies
- Reading: Keith Wailoo and Stephen Pemberton, “‘Eradicating a Jewish Gene’: Promises and Pitfalls in the Fight against Tay-Sachs Disease.” *The Troubled Dream of Genetic Medicine: Ethnicity and Innovation in Tay-Sachs, Cystic Fibrosis, and Sickle Cell Disease* (Johns Hopkins University Press, 2006)

### **Weds 10/28 Technology and Patient Identity**

- Lecture: The Patient in 20<sup>th</sup> century American Medicine
- Reading: Shelley McKellar, “Limitations Exposed,” in Heaman, Li, and McKellar (eds.), *Figuring the Social: Essays in Honor of Michael Bliss* (University of Toronto Press, 2008)

### **Week 9**

#### **Mon 11/2 Midterm**

### **Weds 11/4 Technologies of Reproduction**

- Lecture: The History of Birth Control before World War II
- Reading: Andrea Tone, “Making Room for Rubbers.” *History and Technology* (2002) 18(1): 51-76.
- Primary Source:
  - “Birth Control Finds Supporters,” *New York Times*, January 28, 1923, X9

### **Week 10**

#### **Mon 11/9 Technologies of Reproduction**

- Lecture: The History of Birth Control after World War II
- Reading: Andrea Tone, “The Pill in Practice.” *Devices and Desires: A History of Contraceptives in America* (Hill and Wang, 2001)
- Primary Sources:
  - “Medicine: The Pills,” *Time*, February 17, 1961
  - “Nation: Who’s Come a Long Way, Baby,” *Time*, August 31, 1970

### **Weds 11/11 Technologies of Reproduction**

- Lecture: Contraception Artifacts with Lois Hendrickson from the Wangenstein Library
- Reading: Kara Swanson, “Buying Dad from the Sperm Bank.” *Banking on the Body: The Market in Blood, Milk, and Sperm in Modern America* (Harvard University Press, 2014)

### **Week 11**

#### **Mon 11/16 Therapeutic Technologies and the Medicalized Consumer**

- Lecture: The History of the American Pharmaceutical Industry
- Reading: Tone, “Tranquilizers on Trial,” in Tone and Watkins (eds.) *Medicating Modern America: Prescription Drugs in History* (New York University Press, 2007)
- Primary Sources:

- Martin Arnold, "Narcotics a Growing Problem of Affluent Youth," *New York Times* January 4, 1965, 1
- Charles Grutzner, "Grave Perils Seen in Sleeping Pills," *New York Times*, December 16, 1951, 1
- Walter Sullivan, "Warning Is Issued On Tranquilizers," *New York Times*, December 30, 1963, 23

### **Weds 11/18 Medicalizing the Consumer**

- Lecture: Pharmaceutical Constructions of the Patient
- Reading: Jennifer Fishman, "Making Viagra: From Impotence to Erectile Dysfunction," in Tone and Watkins (eds.) *Medicating Modern America: Prescription Drugs in History* (New York University Press, 2007)

## **BIBLIOGRAPHY DUE**

### **Week 12**

#### **Mon 11/23 "Failed" Medical Innovations**

- Lecture: Pharmaceutical Constructions of the Patient (continued)
- Reading: Nelly Oudshoorn, "Imagined Men: Representations of Masculinities in Discourses on Male Contraceptive Technology," in Saetnan, Oudshoorn, and Kirejczyk (eds.) *Bodies of Technology* (Columbus: Ohio University Press, 2000)

#### **Weds 11/25 Marketing Race**

- Lecture: The History and Innovations of Biotechnology
- Reading: Jonathan Kahn, "Exploiting Race in Drug Development: BiDil's Interim Model of Pharmacogenomics." *Social Studies of Science* (2008) 38: 737-758.

### **Week 13**

#### **Mon 11/30 Marketing Race**

- Lecture: Pharmacogenomic Innovations
- Reading: Alondra Nelson, "Bio Science: Genealogy Testing and the Pursuit of African Ancestry." *Social Studies of Science* (2008) 38: 759-783.

#### **Weds 12/2 Minnesota's Medical Device Industry**

- Lecture: Creating Minnesota's "Medical Alley"
- Reading: Kirk Jeffrey, "Pacing the Heart: Growth and Redefinition of a Medical Technology, 1952-1975." *Technology and Culture* (1995) 36(3): 583-624.

### **Week 14**

#### **Mon 12/7 The Politics of Medical Technology**

- Lecture: The Politics of Medical Technology
- Reading: David Rothman, "The iron lung and democratic medicine." *Beginnings Count* (New York: Oxford University Press, 1997).

#### **Weds 12/9 The Politics of Medical Technology**



- Lecture: The History and Politics of Health Care Access after World War II
- Reading: David Rothman, "Dialysis and national priorities." *Beginnings Count* (New York: Oxford University Press, 1997).
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### **Week 15**

#### **Mon 12/14 Technological Medicine and the Debate over Health Care Costs**

- Lecture: The Recent Politics of Technological Medicine
- Reading:
  - Andrew Pollack, "Medical Technology 'Arms Race' Adds Billions to the Nation's Bills," *NY Times*, April 29, 1991
  - Katy Butler, "What Broke My Father's Heart," *New York Times*, June 6, 2010
  - Judith Ahronheim, et al., "Treatment of the Dying in the Acute Care Hospital," *Archives of Internal Medicine*, 156, no. 18, (1996): 2094-2100

#### **Weds 12/16 Recap and Conclusions**

FINAL PAPERS DUE

#### **FINAL EXAM**

**Mon 12/21 10:30 am – 11:45 am**