

****REVISED**** HS 286: Technologies in the History of Medicine ****REVISED****
FR 9:55 AM-11:50 AM, 202 Bradley Memorial, University of Wisconsin-Madison
Term: Autumn 2011; Course Format: Seminar/Lecture

Instructor Information:

Course Instructor: Prof. Dayle B. DeLancey, Ph.D.

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Office: MSC 1426 (1300 Univ. Ave.)

Office Hours: Fridays from 2-4 PM and by appointment.

Course Description:

From imaging devices to pharmaceuticals, medical technologies are often among the most novel and controversial aspects of contemporary society. Yet, history reveals that neither the emergence of high profile medical technologies nor the dilemmas that often accompany their arrival are strictly 'modern day' phenomena. History also demonstrates that such technologies often reflect not only the medical science but also the social concerns of the periods that spawned them. In this course, we will explore the ways in which a range of technologies – e.g. stethoscopes, spirometers, sphygmomanometers, hospital design, x-rays, reproductive technologies, gene therapy, virtual medicine, etc. – have at once shaped medicine and invited critique. Using readings from a range of sources that illuminate key medical technologies in the 18th- to 21st-century U.S., and building upon readings from 16th- to 18th-century Europe, we will analyze these technologies in historical, social, and theoretical context. Questions guiding our work will include: What are the historical roots of significant medical technologies? How did these technologies shape medicine? Why have physicians and the public embraced some medical technologies and not others? What non-medical technologies have influenced the development of medical technologies? Has medical technology ever been 'value free'?

Course Prerequisites: Open – but not limited to! – freshmen.

Grading & Assessment: *Each student's final grade will be derived from the following elements:*

- * In-class Discussion: 30%
- Reading and Research Journal Entries: 20% (**Please begin these in Week 3.**)
- Literature Review Essay on Topic of Final Research Paper: 20% (**Due IN CLASS on 10/07/11.**)
750-1000 words (about 3-4 pp)
- Final Research Paper: 30% (**Due IN CLASS on 12/09/11.**)
2500-3000 words (about 10-12 pp)

* Because we are conducting this course in seminar/lecture format, **thorough preparation of assigned reading and active participation in classroom discussion are required of each student and comprise a large portion of each student's final grade.**

Research Guidance: On **October 14**, Mrs. Micaela Sullivan-Fowler at UW's Ebling Library will provide research guidance before literature review essays and final research papers are due.

Additional paper resources will be distributed in class and posted to Learn@UW.

Required Readings: All course readings are contained in the course's ELECTRONIC READER, available via Learn@UW.

• **Students must print out copies of course readings to bring to class meetings, as the use of laptops, hand-held devices, or cell/mobile telephones is prohibited during our class sessions.** (UPDATE 9/2/11: Per our discussion in class today, we will revisit this issue in Week 3.)

Core Texts in Electronic Reader: Books of which we will be reading all or most include:

Stanley Joel Reiser, *Technological Medicine: The Changing World of Doctors and Patients* (Cambridge: Cambridge University Press, 2009).

Stanley Joel Reiser, *Medicine and the Reign of Technology* (1978; Cambridge: Cambridge University Press, 1981).

Disability Policy:

In compliance with the Americans with Disabilities Act, I urge any student with a disability to inform me as soon as possible, so that I may make any necessary accommodations to ensure full participation and facilitate educational accessibility. All such requests are confidential.

Students are expected to familiarize themselves with UW policies on plagiarism and to assume full responsibility for academic integrity in all coursework.

Course Objectives:

Upon completion of this course, students should know, understand, and be able to use concrete examples to explain the following in appropriate historical and social context:

- The development, emergence, legacies, and antecedents of some landmark medical technologies.
- Medical technology's role within and/or impact upon:
 - the practice of medicine;
 - conduct of medical research;
 - production and revision of medical knowledge – including disease concepts;
 - medical professionals, professions, and institutions.
- Medical technology's impact upon the experience of the patient.
- Medical technology's relationships with industry.
- Medical technology's relationships with commercial markets.
- Significant theoretical and/or historiographic approaches to the study of medical technologies.
- Key controversies in the development and/or use of medical technologies.
- Medical technologies and bioethics, including questions of allocation, justice, and risk.
- Interactions between medical technologies and ethnicity, race, gender, class, and religion.
- The means of assessing the efficacy and value of medical technologies.

Course Schedule:

- 9/2/11 Week 1: Course Introduction
- 9/9/11 Week 2: Medical Diagnosis and the Five Senses
- 9/16/11 Week 3: The Stethoscope & the Microscope
- 9/23/11 Week 4: The Spirometer & the Sphygmomanometer
- 9/30/11 Week 5: X-Rays and Visual Technologies
- 10/7/11 Week 6: Diagnostic Laboratory Technology (Lit Reviews Due In Class.)
- 10/14/11 Week 7: Research Guidance Session w/ Mrs. Micaela Sullivan-Folwer at Ebling Library
&
Week 7: Hospital Technology: Technology in Hospitals, Hospitals As Technology
- 10/21/11 Week 8: Pharmaceuticals
- 10/28/11 Week 9: Genetic Technologies
- 11/4/11 Week 10: Computing and Telecommunication
- 11/11/11 Week 11: Questioning Medical Technology, Part I:
Vaccines: Coercion, Risk, Personal Freedom, & the Public Good
- 11/18/11 Week 12: Questioning Medical Technology, Part II:
Evaluation and Efficacy
- 11/25/11 NO CLASS: Thanksgiving Recess
- 12/2/11 Week 13: Questioning Medical Technology, Part III: Risk and Rationing
- 12/9/11 Week 14: Questioning Medical Technology, Part IV: The Human Factor

WEEK 1: COURSE INTRODUCTION
FRIDAY, SEPTEMBER 2, 2011

**PERSONAL INTRODUCTIONS, HOUSEKEEPING ISSUES, SYLLABUS REVIEW,
THEORY AND BACKGROUND, OVERVIEW OF MAJOR THEMES**

In-class reading: J. M. S. Pearce, "A Brief History of the Clinical Thermometer," *QJM: An International Journal of Medicine* 95.4(2002): 251-252.

WEEK 2: MEDICAL DIAGNOSIS AND THE FIVE SENSES
FRIDAY, SEPTEMBER 9, 2011

Malcolm Nicolson, "The Art of Diagnosis: Medicine and the Five Senses," in W. F. Bynum and Roy Porter, eds., *Companion Encyclopedia of the History of Medicine, Volume 2* (London and New York: Routledge, 1993), 801-825.

SKIM FOR MAIN IDEAS: Nicholas D. Jewson, "The Disappearance of the 'Sick-Man' from Medical Cosmology, 1770-1870," *Sociology*, 10.2(1976), 225-244.

Week 3: THE STETHOSCOPE & THE MICROSCOPE:
The Extension of the Five Senses or the Disappearance of the 'Sick-Man'?
FRIDAY, SEPTEMBER 16, 2011

Reiser, "Chapter 2: The Stethoscope and the Detection of Pathology by Sound," *Medicine and the Reign of Technology*, 23-44.

Reiser, "Chapter 4: The Microscope and the Revelation of a Cellular Universe," *Medicine and the Reign of Technology*, 69-90.

Week 4: THE SPIROMETER & THE SPHYGMOMANOMETER: Measuring Physiology
FRIDAY, SEPTEMBER 23, 2011

Reiser, "Chapter 5: The Translation of Physiological Actions into the Languages of Machines," *Medicine and the Reign of Technology*, 91-121.

Students Placed in Group 1 Will Read: Lundy Braun, "Spirometry, Measurement, and Race in the Nineteenth Century," *Journal of the History of Medicine and Allied Sciences*, 60.2(2005); 135-169.

Students Placed in Group 2 Will Read: Hughes Evans, "Losing Touch: The Controversy over the Introduction of Blood Pressure Instruments into Medicine," *Technology and Culture*, Special Issue: Biomedical and Behavioral Technology, Vol. 34.4(1993), 784-807.

Week 5: X-RAYS AND VISUAL TECHNOLOGIES: The Anatomized or Transparent Patient
FRIDAY, SEPTEMBER 30, 2011

Reiser, "Chapter 3: Visual Technology and the Anatomization of the Living," *Medicine and the Reign of Technology*, 45-68.

Daniel S. Goldberg, "Suffering and Death among Early American Roentgenologists: The Power of Remotely Anatomizing the Living Body in Fin de Siècle America," *Bulletin of the History of Medicine* 85.1(2011): 1-28.

ALERT!

SECONDARY SOURCE LITERATURE REVIEWS DUE IN CLASS OCTOBER 7, 2011!

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SECONDARY SOURCE LITERATURE REVIEWS DUE IN CLASS ON OCTOBER 7, 2011!

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Week 6: DIAGNOSTIC LABORATORY TECHNOLOGY: Case Studies in Blood

FRIDAY, OCTOBER 7, 2011

Reiser, "Chapter 6: Chemical Signposts of Disease and the Birth of a Diagnostic Laboratory," *Medicine and the Reign of Technology*, 122-143.

Keith Wailoo, "Chapter 2: The Rise and Fall of Splenic Anemia: Surgical Identity and Ownership of a Blood Disease," *Drawing Blood: Technology and Disease Identity in Twentieth-Century* (1997; Baltimore: Johns Hopkins University Press, 1999), 46-72.

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SECONDARY SOURCE LITERATURE REVIEWS DUE IN CLASS ON OCTOBER 7, 2011!

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Week 7: RESEARCH GUIDANCE SESSION AT EBLING LIBRARY

(HOSPITAL TECHNOLOGY READING IS STILL DUE TODAY!)

FRIDAY, OCTOBER 14, 2011

Ebling Library, Room TBA

The class will meet with Mrs. Micaela Sullivan-Fowler, Ebling Library's Head of Special Collections, for a special session featuring databases, special archives and collections, and other resources that will assist students with research for their final papers.

*** HOWEVER, ***

**the HOSPITAL TECHNOLOGY reading below is still due today,
so please submit your research journal before class as you would normally!**

HOSPITAL TECHNOLOGY: Technology in Hospitals, Hospitals as Technology

FRIDAY, OCTOBER 14, 2011

Reiser, "Chapter 7: Medical Specialism and the Centralization of Medical Care," *Medicine and the Reign of Technology*, 144-157.

Joel D. Howell, "Science, Scientific Systems, and Surgery: Technology and the U.S. Hospital," *Technology and the Hospital: Transforming Patient Care in the Early Twentieth Century* (Baltimore: Johns Hopkins University Press, 1996), 30-67.

Week 8: PHARMACEUTICALS: Technological Products of Science, Medicine, and Industry

FRIDAY, OCTOBER 21, 2011

Charles E. Rosenberg, "The Therapeutic Revolution: Medicine, Meaning, and Social Change in America" in Judith Walzer Leavitt and Ronald L. Numbers, eds., *Sickness and Health in America: Readings in the History of Medicine and Public Health*, Second Edition (Madison, WI: University of Wisconsin Press, 1985), 39-52.

Students Placed in Group 1 Will Read: Nancy Tomes, "The Great American Medicine Show Revisited," *Bulletin of the History of Medicine*, 79.2(2005): 627-663.

Students Placed in Group 2 Will Read: Dominique Tobbell, "Allied Against Reform: Pharmaceutical Industry–Academic Physician Relations in the United States, 1945–1970," *Bulletin of the History of Medicine* 82.4 (2008): 878-912.

Students Placed in Group 3 Will Read: Suzanne White Junod and Lara Marks, "Women's Trials: The Approval of the First Contraceptive Pill in the United States and Great Britain," *Journal of the History of Medicine and Allied Sciences* 57.2(2002): 117-160.

Week 9: GENETIC TECHNOLOGIES: Ethnicity, Commerce, and 'Science's Holy Grail'

FRIDAY, OCTOBER 28, 2011

Daniel J. Kevles, "Out of Eugenics: The Historical Politics of the Human Genome," in Daniel J. Kevles and Leroy Hood, eds. *The Code of Codes: Scientific and Social Issues in the Human Genome Project* (Cambridge, MA: Harvard University Press, 1992), 3-36.

Students Placed in Group 1 Will Read: Sally Smith Hughes, "Making Dollars Out of DNA: The First Major Patent in Biotechnology and the Commercialization of Molecular Biology, 1974-1980," *Isis* 92.3(2001): 541-575.

Students Placed in Group 2 Will Read: Keith Wailoo and Stephen Pemberton, "Chapter 1: Eradicating a 'Jewish Gene': Promises and Pitfalls in the Fight against Tay-Sachs Disease," *The Troubled Dream of Genetic Medicine* (Baltimore: Johns Hopkins University Press, 2006), 14-60.

Week 10: COMPUTING & TELECOMMUNICATION: Beyond Quantification and Automation

FRIDAY, NOVEMBER 4, 2011

Reiser, "Chapter 10: Telecommunication, Automation, and Medical Practice," *Medicine and the Reign of Technology*, 196-226.

Students Placed in Group 1 Will Read: Joel D. Howell, "Technologies Transforming Health Care: X-Rays, Computers, and the Internet," in Lester D. Friedman, ed., *Cultural Sutures: Medicine and Media* (Durham and London: Duke University Press, 2004), 333-350.

Students Placed in Group 2 Will Read: Chul-Young Roh, "Telemedicine: What It Is, Where It Came From, and Where It Will Go," *Comparative Technology Transfer and Society*, 6.1 (2008): 35-55.

**Week 11: QUESTIONING MEDICAL TECHNOLOGY, PART I:
VACCINES—Coercion, Risk, Personal Freedom, & the Public Good**

FRIDAY, NOVEMBER 11, 2011

Alexandra Minna Stern and Howard Markel, "The History of Vaccines and Immunization: Familiar Patterns, New Challenges," *Health Affairs*, 24.3(2005): 611-621.

James Colgrove, "Between Persuasion and Compulsion: Smallpox Control in Brooklyn and New York, 1894-1902," *Bulletin of the History of Medicine* 78.2(2004): 349-378. Rpt. in James Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America* (Berkeley and Los Angeles: Milbank and the University of California Press, 2006), 17-44.

Lawrence O. Gostin and Barbara D. DeAngelis, "Mandatory HPV Vaccination: Public Health vs. Private Wealth" (Editorial), *Journal of the American Medical Association* 297.17(2007): 1921-1923.

Week 12: QUESTIONING MEDICAL TECHNOLOGY, PART II: Evaluation and Efficacy

FRIDAY, NOVEMBER 18, 2011

Reiser, *Medicine and the Reign of Technology*, as follows:

- "Chapter 8: The Shortcomings of Technology in Medical Decision-Making," 158-173.
- "Chapter 9: Selection and Evaluation of Evidence in Medicine," 174-195.

NO CLASS

THANKSGIVING RECESS

FRIDAY, NOVEMBER 25, 2011

NO CLASS

ALERT!

FINAL RESEARCH PAPERS DUE IN CLASS DECEMBER 9, 2011!

ALERT!

Week 13: QUESTIONING MEDICAL TECHNOLOGY, PART III: Risk and Rationing

FRIDAY, DECEMBER 2, 2011

George J. Annas and Sherman Elias, "Thalidomide and the Titanic: Reconstructing the Technology Tragedies of the Twentieth Century," *American Journal of Public Health*, 89.1 (1999): 98-101.

Stanley Joel Reiser, *Technological Medicine: The Changing World of Doctors and Patients* (Cambridge: Cambridge University Press, 2009), as follows:

- Students Placed in Group 1 Will Read: Reiser, "Chapter 3: Lifesaving but Unaffordable: The Improbable Journey of the Artificial Kidney," *Technological Medicine*, 31-51.
- Students Placed in Group 2 Will Read: Reiser, "Chapter 4: Promising Rescue, Preventing Release: The Double Edge of the Artificial Respirator," *Technological Medicine*, 52-73.

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FINAL RESEARCH PAPERS DUE IN CLASS DECEMBER 9, 2011!

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Week 14: QUESTIONING MEDICAL TECHNOLOGY, PART IV: The Human Factor

FRIDAY, DECEMBER 9, 2011

Reiser, "Chapter 9: Governing the Empire of Machines," *Technological Medicine*, 186-204.

Rebecca Skloot, *The Immortal Life of Henrietta Lacks* (New York: Crown, 2009), selections.

Jennifer Obel, "Losing the Touch: As Technology and Medical Education Change, Doctors May Lose the Ability to Perform Physical Exams," *The Washington Post*, June 17, 2003, F01.

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