

History of Science and Technology 3332/5332

Science in American Culture |

Syllabus

| HSCI 3332/5332

Spring Semester, 2000

9:45–11 am, T Th | Professor Sally Gregory Kohlstedt
with Teaching Assistant Erika Dirkse

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Course Description: ** _

The assignments, lectures, and discussions in this course constitute a survey of the history of science in the United States, with particular emphasis on the institutional configurations that emerged in the period since nationhood. We begin with indigenous and European ways of understanding nature and the challenges provided by the Americas. Much of the course is dedicated to following the perceptions and practices of science and technology over time; the establishment of an infrastructure for education and research; the relationship among government, corporate, and academic scientists and engineers; and the access by diverse groups to education in and practice of science.

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Course Format ** _ :

Class meetings will consist of lectures, on-line assignments, group discussions, and some class presentations. There will be assigned readings and films. During some periods, the class will be assembled into small groups that typically include a mix of students from technical and humanistic majors; the mix of historical and scientific issues is also evident in the assigned readings. The goal is to allow students to learn more by sharing knowledge with and listening to alternative ideas of others in the group, thus serving as consultants to each other; during discussion instructors are only to facilitate and help to focus group attention on key questions. Since readings will be the subject of questions and comments, students should be prepared to discuss all reading on the day the assignment is listed; a reading journal is strongly recommended.

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Course Requirements ** _ :

Utilizing lecture materials and readings, discussion and written assignments are intended to increase student capacity to write independently and analytically about historical topics. 1) Discussions are meant to enhance participation, deepen knowledge of the themes of the course, and identify problems in understanding the information. Attendance is therefore required.

2. Five computer based assignments will bring primary source visual and textual materials together as another way of understanding specific aspects of

science in American culture; these are due as a paper copy at the beginning of class on the day designated. 3) The midterm examination will be essay (one essay and some shorter identification subjects). 4) The final examination (similar format) will be primarily based on the course work after the mid-term, although the essay portion may ask for some general reflections relating to the earlier period. Students taking the class as 5332 will need to prepare a 2000 review articles and books on an agreed upon topic; each of you should propose your reading by February 10th and have the final copy ready on April

11.

Office hours and Appointments: Professor Kohlstedt's office is in 123 Pillsbury Hall, Winchell School of Geology and Geophysics (4-9368; sgk@tc.umn.edu); her office hours will be on Friday from 1:30 to 3 pm with other times are available by appointment. Erika Dirkse's office is in 167 Social Science Building on the West Bank and her office hours will be Wednesday from 8-10 and Friday from 1:30 to 2:30.

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Readings and Texts** _ :

The bookstore has on order the following books:

John F. Kasson, *Civilizing the Machine: Technology and Republican Values, 1776-1900* (London: Penguin Books, 1976).

Daniel J. Kevles, *The Physicists: A Scientific Community in Modern America* (Cambridge: Harvard Univ. Press, 1995)

Ronald Numbers and Charles Rosenberg, eds., *The Scientific Enterprise in America* (Baltimore: Johns Hopkins University Press, 1996).

Kenneth Manning, *Black Apollo of Science: The Life of Ernest Everett Just*
(New York: Oxford University Press, 1984).

Lawrence Badash, *Scientists and the Development of Nuclear Weapons: From Fission to the Limited Test Ban Treaty, 1939–1963* (New Jersey: Humanities Press, 1995).

Margaret Rossiter, *Women Scientists in America: Before Affirmative Action, 1940–1972* (Baltimore: Johns Hopkins University Press, 1995).

Those books are also reserve in Norris Hall, along with other readings that may be assigned, so you may want to read the assignments carefully before purchasing them for the course. Some source materials will also be distributed in class.

Potential topics for presentation in class. These presentations would be about twenty minutes, involve a short research paper and bibliography submitted to the instructor, and a handout for the class: Benjamin Franklin (Jan. 27), Maria Mitchell (Feb.8), science on the western surveys (Feb/ 8), science journalism in the mid–nineteenth century (Feb. 15), the Agassiz– Gray debate on evolution (Feb.22), the Johns Hopkins University and Bryn Mawr College (Feb. 24), Veblen and the new economics (Mar.2), modern art and its science connections in the 1910s and 1920s (Mar.9), Andrew Carnegie or John D. Rockefeller foundations (Mar. 21), Cold Spring Harbor and eugenics (Apr. 4), chemistry during and after WW I (April. 6), the International Geophysical Year (Apr. 18), the Green Revolution (Apr. 25), the meaning of the Green Revolution (Apr. 25), or Rachel Carson or any commentator on the problems within science (Apr. 27).

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Topics and Assignments**_ :

Jan. 18 Introduction: Old Worlds and New Worlds

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Global and Local: Science in the Colonies and the New Nation**

Jan. 20 The Dynamics of Science in Empire. Go look at
www.mnh.si.edu/arctic/html/ancient/html

Jan. 25 Colonists Initiatives in the Era of the Scientific Revolution

Jan 27 Science and the American Revolution; also DISCUSSION on Kasson,
Civilizing the Machine , chapter 1

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Coordinating Science on American Terms**

Feb. 1 Natural Historians and Ingenious Yankees. Read: Kohlstedt, "Parlors,
Primers, and Public Schooling...." (N&R). Due: [ON LINE Assignment I](http://www1.umn.edu/scitech/nh_title.htm)
(http://www1.umn.edu/scitech/nh_title.htm) (natural history)

Feb. 3 Organizations for Science in a Democratic Culture. Read: Daniels,
"The Process of Professionalization...." (N&R)

Feb. 8 Science and the Government. Read: Hugh Slotten, "The Dilemmas of
Science in the U.S....." (N&R). Due: [ON LINE Assignment](http://www1.umn.edu/scitech/jh_title.htm)
[II](http://www1.umn.edu/scitech/jh_title.htm) (http://www1.umn.edu/scitech/jh_title.htm) (Joseph Henry)

Feb. 10 The Regional Status of Science and the Impact of the Civil War

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Framing a Scientific Culture**

Feb. 15 Public Forums for Science. Due: [ON LINE Assignment](http://www1.umn.edu/scitech/mu_title.htm)
[III](http://www1.umn.edu/scitech/mu_title.htm) (http://www1.umn.edu/scitech/mu_title.htm) (museums)

Feb. 17 No Class

Feb. 22 The Natural Sciences after Darwin

Feb. 24 Emerging Professions and Higher Education. Read: Kohler, "The Ph.D.
Machine" (N&R). Due: [ON LINE Assignment](http://www1.umn.edu/scitech/as_tradintro.htm)
[IV](http://www1.umn.edu/scitech/as_tradintro.htm) (http://www1.umn.edu/scitech/as_tradintro.htm) (astrophysics)

Feb. 29 Science: Defined by Methods and Practitioners. Read: Rossiter,
"Women's Work in Science" (N&R) and Kevles, *The Physicists* , chapter 1–5,
13, 14, & 15.

Mar 2 Emerging Social Sciences and Beginnings of Progressivism

Mar. 7 MIDTERM EXAM

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Science in Early 20th Century America**

Mar. 9 Progressivism, Modernism and other Isms. Read: Kasson, *Civilizing*
the Machine , chapter 4

Mar. 14 Industrial Science. Read: Wise, "Ionists in Industry..." (N&R) and Owens, "MIT and the Federal Angel..." (N&R). Due: Microtheme I

Mar. 16 DISCUSSION: Manning, *Black Apollo*

Mar. 21 Philanthropy and Reconfiguration of the Sciences in the Early Twentieth Century

Mar. 23 Ambiguity about Science, Technology, and Culture. Charlie Chaplin film, *Modern Times*. __ Read: Gregg Mitman, "Cinematic Nature" (N&R)

SPRING BREAK!!

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The Century of Science and Technology**

Apr. 4 Science in the Interwar Years. Read: Owens, *MIT and the Federal Angel...*@ (R&R)

Apr. 6 Science and the World Wars. Read: Kevles, *The Physicists* , chapters 20 and 21 and Rossiter, *Women Scientists* , chapters 1 and 2. Due: Microtheme II

Apr. 11 The Atomic Age. Read: Badash, *Scientists and the Development of Nuclear Weapons* , chaps. 1–5 and Goldberg, *Inventing a Climate of Opinion...*@ (N&R). Film: *The Decision to Drop the Bomb*

Apr. 13 DISCUSSION. Read: Badash, complete and Kevles. *The Physicists* , chapters 22 and 23

Apr. 18 Global Sensibilities in the 1950s

Apr. 20 NASA and the Space Race. Due: [ON LINE Assignment V \(http://www1.umn.edu/scitech/space_title.htm\)](http://www1.umn.edu/scitech/space_title.htm) (the space program)

Apr. 25 Scientific and Technological Imperialism

Apr. 27 Voices of Skepticism. Read: Lederer, *Political Animals*@ (N&R)

May 2 Changing Priorities in Science Policy and Practice. Read: Kevles, *The Physicists* , chapter 25 and "Preface: 1995"

May 4 The Challenges of Science in the 21st Century

Please read carefully the Standard Statement on Course Requirements developed by the University of Minnesota. You will not be allowed to do make-up work or take an incomplete grade for the course without a compelling reason, presented in writing and with the advance knowledge of the instructors (if possible).

[Return to HSci 3332 Homepage \(http://www1.umn.edu/scitech/3332-home.htm\)](http://www1.umn.edu/scitech/3332-home.htm)

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