

History 180A: History of the Scientist

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Preliminary syllabus: subject to revision

Topic and purposes of the class. This course is, in a way, an introduction to the history of science, but instead of focusing on scientific discoveries or ideas or experiments or even institutions, we will emphasize the character of the scientist. We will be asking, for each historical period or situation: what possibilities were there for making a career in science? What sort of person should a scientist be, with what social background, education, and connections? When did it become possible to regard science as a career? [The word “scientist,” which was coined in the 1830s and came into use toward the end of the nineteenth century, marked the arrival of science as an ordinary career. Many disliked the term, preferring to think of science as a higher calling.] How was science connected to philosophy or to religion? To technology, commerce, and industry? To war and military affairs? To administration? Were scientists understood to possess a special form of rationality, and could this be extended to social and ethical questions? How did scientists understand their place in history or the cultural significance of their knowledge? Why have scientists so often wanted to keep their distance from politics?

Students from all majors are welcome. Students should be interested in the culture and social roles of science, but will not be expected to “learn” science in the sense that you would in a biology or physics course. The technical (scientific) demands of this course are very modest.

A personal note: You will notice that the class readings include the whole of my own new book on the scientist, statistician, and champion of scientific method Karl Pearson (1857-1936). I might add that for my next book I hope to write something on the order of a history of the scientist, and that this class, which is brand new, is among other things an effort to organize and clarify my own thinking. So the course will be, for me as for you, an exploration. I anticipate, frankly, that you will find the book more difficult than most you have read in courses here, but there is after all a method to my (our?) madness: the problem of how to do historical research will be central to the class. The research papers that you are required to write make up a very important part of the class.

I’m trying to find a few relevant (and entertaining?) films. I plan to show one or two in class, or you may be required to watch some outside of scheduled class time in the media laboratory at the College Library.

Requirements and Grading. Besides the research paper (about which you will hear much more), you are asked to come to class each week and to do all the reading. I will take attendance at least some of the time. Under “Lectures and assignments” you will find written assignments listed for each of the first eight weeks. You are required to turn in at least four of these. They must be turned in on the date listed; late assignments will not be accepted. If you write more than four of these, only your highest four grades will be counted.

The final exam will consist of essay questions. Your research paper should be about the career or life of an individual involved in science. It is not enough to summarize this person’s scientific activities or achievements, but should emphasize the social assumptions, larger purposes, or public roles of science as revealed by the values and activities of this individual.

Grades will be determined as follows:

Attendance, class participation, and weekly assignments:	30%
Research paper:	40%
Final exam	30%

Readings: Books for purchase (available at Ackerman, but note that you may be able to acquire some more cheaply online; also available at College reserves):

Jean-Pierre Poirier, *Lavoisier: Chemist, Biologist, Economist* (1993; translated by Rebecca Balinski, University of Pennsylvania Press, 1996)
Theodore M. Porter, *Karl Pearson: The Scientific Life in a Statistical Age* (Princeton University Press, 2004)
Course reader, by APS

Other books available at College reserves:

Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (University of Chicago Press, 1994)
Charles C. Gillispie, *Science and Polity in France at the End of the Old Regime* (Princeton University Press, 1981)
Charles C. Gillispie, *Science and Polity in France: The Revolutionary and Napoleonic Years* (Princeton University Press, 2004)
Paul White, *Thomas Huxley: Making the “Man of Science”* (Cambridge University Press, 2003)
James Gleick, *Genius: The Life and Science of Richard Feynman* (Pantheon Books, 1992; you can also buy a used copy of this interesting biography for a few dollars at amazon.com)
Richard Feynman, *Surely You’re Joking Mr. Feynman* (also readily available used)

Research articles, available in APS course reader from Ackerman bookstore:

[Mary Terrall, "Emilie du Châtelet and the Gendering of Science,"](#) *History of Science*, 33 (1995), 283-310

[James A. Secord, "Extraordinary experiment: electricity and the creation of life in Victorian England,"](#) in David Gooding, Trevor Pinch, and Simon Schaffer, eds., *The Uses of Experiment* (Cambridge University Press, 1989), 337-383

Lectures and assignments

30 September: Introduction: Science as a career, a role, an identity.

5-7 October. Patrons, academies, and gentlemanly philosophers, or, how to earn a living without compromising your integrity.

Reading: Shapin, [Social History of Truth](#), chap. 3, pp. 65-125

Assignment (due 7 Oct.; about 300-500 words): Why, according to Shapin, was gentlemanly status important for practitioners of science in seventeenth-century England? Are you convinced? If so, is it still true?

12-14 October. The Enlightenment man (and woman) of science

Reading: [Terrall, "Emilie du Châtelet"](#)

Poirier, *Lavoisier*, chaps. 2, 6-8, pp. 22-46, 84-134

Assignment (due 14 Oct.; 300-500 words): What difference did it make for du Châtelet's effort to be taken seriously in science that she was a woman? Did her position in life offer any compensating advantages?

19-21 October, Science and the French state

Reading: Poirier, *Lavoisier*, chs. 10-14, pp. 154-273

Assignment (due 21 Oct.; 300-500 words): What relations do you find between Lavoisier's work as a chemist and economic writings?

26-28 October, Who is a scientist? (and, more crucially, who isn't?)

Reading: Gillispie, *Science and Polity in France at the End of the Old Regime*, chap. IV, pp. [257-331](#)

Gillispie, *Science and Polity in France: Revolutionary and Napoleonic Years*, chap. II, parts 1-2, pp. 101-124.

Assignment (due 28 Oct.; 300-500 words): How did the Paris Academy of Sciences get itself into the business of judging scientific claims to determine whether they involved serious work or charlatanism?

2-4 November. The Victorian man of science: professionals and outsiders

Reading: [Secord, "Extraordinary Experiment"](#)

White, *Thomas Huxley*, Introduction and chap. 3, pp. 1-5 and 67-99

Assignment (due 4 Nov.; 300-500 words): What aspects of Andrew Crosse's work did the British scientific gentlemen find unacceptable?

9-11 November: The historical role of science

Reading: Porter, *Karl Pearson*, chaps. 1-5, pp. 1-124

Assignment (due 11 Nov.; 300-500 words): Why was the question of objectivity or “disinterestedness” so pressing in regard to the history of the Protestant Reformation?

16-18 November: Touching nature (or not)

Reading: Porter, *Karl Pearson*, chaps. 6-7, pp. 125-214

Assignment (due 18 Nov.; 300-500 words): Why was the issue of objectivity so important, and so vexed, in the Men and Women’s Club?

23 November. The ironies of scientism.

Reading: Porter, *Karl Pearson*, chaps. 8-10, pp. 215-314

Assignment (due 23 Nov.: 300-500 words): What public role did Pearson envision for the scientist, and what personal, moral, and intellectual traits did he think this role required?

30 November-2 December. Is science just fun?

Reading: Gleick, *Genius*, pp. 311-329, 375-396

Feynman, *Surely You’re Joking* (Read around in it to get a sense of Feynman’s style).

Discussion questions (no written assignment): Is there anything odd about the way Feynman presents himself in this memoir? How much does it contain of his personal life? Does it encourage us to think of physics as something important, and in what way?

7-9 December. Changing roles of science in the atomic age.

(No reading; work on research papers.)

Research Paper, 10-15 pages, due 9 December

Final Exam (essay questions): Thursday, Dec. 16, 3-6 p.m.