

History of Science 203: Science in the Twentieth Century--A Historical Overview

3 Credits; Z (Humanities or Social Studies)

2 hours lecture (11:00 MW, 5106 Social Science), 1 hour discussion

Prerequisites: None

Instructor: Mr. Siegel

Major themes in the physical and biological sciences in the twentieth century, with attention to:

- * conceptual development in science
- * interaction of science and society
- * philosophical issues in science
- * personalities in science

Lecture Outline

I. The Second Scientific Revolution (1890-1930)

- A. Introductory
- B. Chance Discovery and the Rise of Atomic Science, 1895-1915
- C. The Theory of Relativity, ca. 1905
- D. The Evolution of Quantum Theory, 1900-1930
- E. The New World-View, 1920-1940

II. The Double Helix and the Bomb (1900-1960)

- A. Classical Genetics, 1860-1920
- B. Toward Molecular Biology, 1920-1960
- C. Energy--Cosmic and Nuclear, 1900-1930
- D. Enrico Fermi and Nuclear Fission, 1930-1940
- E. Ernest Lawrence and the Big Machines, 1930-1950
- F. Mobilizing Science for War, 1939-1942
- G. Robert Oppenheimer and the Bomb, 1940-1950

III. New Horizons (1900-1980)

- A. Toward a New Cosmology
- B. Science and Society in the Post-War Period
- C. New Directions for Science

Course Requirements

Two midterm (evening) exams plus final; some informal writing for discussion section.

Attendance is required at all class sessions: 1) Attendance at discussion sections will be recorded and reflected in the section grade. 2) Although attendance at lectures will not normally be recorded, neither the assigned reading material nor any lecture notes will fill in reliably for a substantial number of missed lectures.