

**NEW YORK UNIVERSITY**  
**The Steinhardt School of Education**  
**Department of Teaching and Learning**

**E14.2042 - THE SCIENTIFIC ENTERPRISE**  
**Spring 2003**

**TIME/PLACE:** Wednesday, 6:45 p.m. – 8:25 p.m.; Tisch LC4  
**INSTRUCTOR:** Nina A. Leonhardt  
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**OFFICE:** Dept of Teaching & Learning, East Bldg., 6<sup>th</sup> floor

**REQUIRED TEXT/READINGS:** Anton, Ted. *Bold Science*. W.H. Freeman, 2001.  
Horgan, John. *The End of Science*. Broadway Books, 1997.  
Sobel, Dava. *Longitude*. Penguin Books, 1995.

Each Tuesday, students are expected to obtain and read the Science Times section of *The New York Times*. It should be brought to class for discussion purposes.

**RECOMMENDED READINGS:** Greenstein, George. *Portraits of Discovery*, Wiley & Co., 1998.  
Hellman, Hal. *Great Feuds in Science*, Wiley & Co., 1999.  
Holton, Gerald. *Einstein, History, and Other Passions*, Addison Wesley, 1996.  
Maddox, John. *Mapping the Secrets of the Universe, the Origins of Life, and the Future of the Human Race*, The Free Press, 1998.  
Rabinow, Paul. *Making PCR*, University of Chicago Press, 1996.

**COURSE DESCRIPTION:**

Through readings, discussions and presentations, this course examines the professional practice of science in relation to social, political and economic forces. The implications of public policy on science and technology are also explored.

**COURSE OBJECTIVES:**

After completing this course, students will:

- 1) understand the characteristics and process of scientific inquiry as it is undertaken in university, government and industrial settings;
- 2) understand the role of science in relation to technology and industry;
- 3) be able to assess the effects of emerging technologies on society, based on an understanding of the underlying science and a recognition of the social science forces; and
- 4) be able to determine appropriate ways to convey the characteristics of the scientific enterprise in the context of school science education.

**COURSE REQUIREMENTS:**

Each student is required to submit two short papers (4-5 pages each), one representing individual research and the second, as part of a team effort. Each team will deliver an oral presentation in addition to the team paper. Two reaction papers are also required: a reaction to course readings and a reaction to public perceptions of science. There will also be occasional homework assignments, in-class discussion and an in-class final exam. The final grade will be computed as follows: individual paper (20%), reaction papers (10%), team presentation (15%), team paper (15%), final exam (20%), homework (5%) and class discussion, including *The New York Times* readings (15%).

Individual Paper

Each student will submit a review of an article describing original scientific research. A topic proposal is due on February 12; the paper is to be submitted on February 26.

Reaction Papers

Each student will submit a brief paper reacting to course readings by March 15. The second paper, due April 2, will examine public perceptions of science following an individual field trip.

Team Paper/ Presentation

Each team of 3-5 students will select a controversial science/technology issue; describe it and the "enterprise" aspects that contributed to its development. In addition, the issues of applying the science/technology to society should be addressed. Topic proposals are due March 30. Each group will give a twenty-minute presentation, followed by a group-led question and answer period. Presentations will begin on April 16. Papers are due on April 30.

## Course Schedule

*The New York Times Science Times* is to be read prior to each class. Be prepared to discuss articles.

- 1/22 Introduction; What is science?; Status of science in the U.S.  
Begin reading *Bold Science*
- 1/29 Scientific enterprise in the U.S. - who does science and who pays for it?  
Research article for individual paper
- 2/5 Science and technology; Science/technology and society  
Complete *Bold Science*; begin reading *Longitude*  
Bring possible articles to class or e-mail URLs
- 2/12 The rise of science; Where are we today?  
Individual proposals due; complete *Longitude*
- 2/19 Science and society  
Begin reading *The End of Science*
- 2/26 Science and public perceptions  
Individual paper due
- 3/5 Science and government; Science and business/industry
- 3/12 Science and education  
Complete *The End of Science*; reaction paper due via e-mail by 3/15
- 3/19 No class
- 3/26 Field trip; team meetings  
Team proposals due via e-mail by 3/30
- 4/2 Discussion of field trips; Use and misuse of science and scientific "evidence"  
Reaction papers due
- 4/9 Science/technology for its own sake; Future directions
- 4/16 Team presentations/papers
- 4/23 Team presentations/papers
- 4/30 Team presentations/papers
- 5/7 Final exam