

# History of Science in the Modern Age

HIST518

Spring, 1997

Kansas State University - Syllabus

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## Reading:

Required:

Anthony M. Alioto, A History of Western Science  
Bernard Jaffe, Crucibles  
Jonathan Weiner, The Beak of the Finch  
Richard Rhodes, The Making of the Atomic Bomb  
James D. Watson, The Double Helix

Recommended:

Kenneth Corey, The Essential Darwin  
Thomas S. Kuhn, The Structure of Scientific Revolutions

## I. Introduction to the Course

January 23--Lecture 1: The Ancients [Alioto 1-116].

## II. Classical Physics and Astronomy

January 24--Lecture 2: Aristotle and the Great Chain of Being [Alioto 117-177].

January 25--Lecture 3: A New Cosmology: Copernicus and Galileo [Alioto 178-207].

January 30--Laboratory 1 Introduction to the Laboratory, Dr. Thomas L. Isenhour.

January 31--Laboratory 2 Classical Physics, Dr. Chris Sorensen, Prof. of Physics.

February 1--Lecture 4: Galileo and the Language of Nature [Alioto 208-222].

February 6--Lecture 5: A Mechanistic World: Descartes and Kepler [Alioto 223-233;  
Jaffe 25-36].

February 7--Laboratory 3 Classical Physics, Prof. Sorensen.

February 8--Lecture 6: Space and Time: Newton [Alioto 233- 249].

### **III. Classical Chemistry and Electricity**

February 13--Lecture 7: The Age of Scientific Revolution

February 14--Laboratory 4: Classical Physics, Prof. Sorensen.

February 15--Lecture 8: The Enlightenment and the Idea of Progress [Alioto 262-279].

February 20--Lecture 9: The Foundations of Modern Chemistry: Priestly, Cavendish, Lavoisier and Dalton [Alioto 250-279; Jaffe 27-99].

February 21--Laboratory 5 Classical Chemistry, Prof. Isenhour.

February 22--Lecture 10: The Chemical World of Berzelius, Avogadro Mendeleev, and Arrhenius [Jaffe 100-128; 150-180].

February 27--Lecture 11: Foundations of Organic Chemistry--Woehler, Berzelius, and Pasteur [Jaffe 129-149; Alioto 312-332].

February 28--Hour Exam; Laboratory 6 Classical Chemistry

### **IV. Natural History (Classical Geology and Taxonomy)**

February 29--Lecture 12: Time is Everything--Foundations of Natural History [Alioto 280-281].

March 5--Lecture 13: Natural History and Classical Geology [Alioto 293-302].

March 6--Laboratory 7 Classical Geology, Dr. Ronald West, Prof. of Geology.

### **V. Classical Biology**

March 7--Lecture 14: Darwin, Origin of Species [Korey 57-228; Weiner begin].

March 12--Lecture 15: The Beak of the Finch [Weiner entire].

March 13--Laboratory 8 Classical Biology

March 14--Lecture 16: Darwinism in America

March 19--Lecture 17: Origins of Social Science: Marx and Freud

March 20--Laboratory 9 Classical Biology , Dr. John Zimmerman, Prof. of Biology.

March 21--Lecture 18: The Structure of Science Revolution- Kuhn [Kuhn].

March 25-29--no classes Spring Vacation

April 2--Lecture 19: 19th Century Physics - Electromagnetism

April 3--Laboratory 10 Classical Biology, Prof. Zimmerman.

## **VI. The Atomic and Molecular Era**

April 4--Lecture 20: 19th Century Physics - Thermodynamics and Kinetics [Alioto 333-349].

April 9--Hour Exam

April 10--Lecture 21: Radioactivity and Atomic Structure [Alioto 350-375; Jaffe 181-217; Rhodes 13- 53].

April 11--Lecture 22: Radioactivity and Atomic Structure [Jaffe 218-264; Rhodes 53-275].

April 16--Lecture 23: Relativity and Uncertainty [Alioto 376-399; Rhodes 279-442].

April 17--Laboratory 11 Atomic Energy

April 18--Lecture 24: The Making of the Atomic Bomb [Jaffe 265-307; Rhodes 443-678].

April 23--Lecture 25: Science and the Federal Government [Jaffe 308-309; Rhodes 679-788].

April 24--Laboratory 12 Atomic Energy

April 25--Lecture 26: A New Understanding of Life [Alioto 400-430.]

## **VII. The Chemical and Biological Revolution**

April 30--Lecture 27: The Chemical Bond, Prof. Isenhour. Watson begin.

May 1--Laboratory 13 Ecology of the Konza Prairie

May 2--Lecture 28: The Double Helix, Prof. Isenhour [Watson entire].

May 7--Lecture 29: The New Ecology [Alioto 431-443].

May 8--Laboratory 14 Ecology of the Konza Prairie

May 9--Lecture 30: The Frontiers of Modern Science

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Send comments and questions to [jackholl@ksu.edu](mailto:jackholl@ksu.edu)

This page was modified and is maintained by Jim Ehrman and Susannah Bruce of the History Department's Online History Project.