

HISTORY OF SCIENCE 323 / HISTORY 323
The Scientific Revolution: from Copernicus to Newton
Fall 2007
11:00am-12:15pm TuTh
6102 Social Science

instructor: Florence Hsia
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COURSE DESCRIPTION

This course investigates the renaissance and revolution in European science that began in 1543 with the heliocentric astronomy of Nicolaus Copernicus and ended with Isaac Newton's death in 1727. We will pay particular attention to issues of tradition and novelty, institutional settings for scientific activity, and the relationship between science and religion. Topics covered will include the Copernican cosmology and the trial of Galileo, the mechanical philosophy, Newton's theory of gravitation, the appearance of new scientific organizations such as the Royal Society of London and the Paris Academy of Sciences, the role of science in European exploration and expansion, and perceptions of the scientist's place in society.

This class also emphasizes the skills of analyzing historical documents and of constructing persuasive arguments about historical questions. It is therefore extremely important that you complete the readings assigned for each class session before coming to class. Please bring the readings – especially those in the Course Reader – to class with you.

COURSE REQUIREMENTS AND GRADING

1. Attend classes.
2. Prepare assigned readings.
3. Grades will be based on two (2) in-class presentations and three (3) take-home essay exams.

Grades will be calculated using the following rough guidelines:

two (2) in-class presentations, Oct. 16 (Tu) + Nov. 29 (Th)	~25%
exam 1 due in class, Oct. 18 (Th)	~25%
exam 2 due in class, Nov. 27 (Tu)	~25%
exam 3 due by 2:00pm, Dec. 20 (Th)	~25%

Honors students need to complete an honors assignment. Please see me for details.

Graduate students should also enroll in History of Science 623 (for assignments, see the HoS 623 syllabus.)

COURSE POLICIES

I will make every effort to honor requests for reasonable accommodations made by individuals with disabilities. If you think you may qualify for accommodation, please contact the McBurney Disability Resource Center at 263-2741 <<http://jumpgate.acadsvcs.wisc.edu/~mcburney/>> to establish your eligibility for services. If you require such accommodation, please let me know as soon as possible in the semester. All requests are confidential.

Academic honesty is expected of students at the University of Wisconsin-Madison in compliance with the student code of conduct. All written work that you turn in under your name should be solely your work. Both paper and internet sources must be acknowledged; failure to understand what counts as plagiarism is not an adequate excuse. Plagiarism and other forms of academic misconduct carry penalties. Please feel free to talk to me if you have any questions about how to properly cite sources in your written work.

TEXTBOOKS

- Course Reader (purchase in the History of Science department office, 7130 Social Science)
- Peter Dear, Revolutionizing the sciences, Princeton 2001 (purchase at the University Book Store, 711 State Street)

SCHEDULE OF ASSIGNMENTS AND TOPICS

CR = Course Reader

D = Dear, Revolutionizing the sciences (2001)

- Sept. 4 (T) **introduction**
Sept. 6 (Th) **scientific renaissance**
CR, 1-26 Vesalius, On the fabric of the human body (1543), selections
D, 1-9, 30-33, 37-41 [intro + chap. 2, sections I + III]
- Sept. 11 **the Aristotelian cosmos**
CR, 27-30 Aristotle, Physics, book II, selections
D, 10-15 [chap. 1, section I]
- Sept. 13 **the Greek cosmological tradition**
CR, 31-36 diagrams; Ptolemy, Almagest, bk. I, chaps. 2-4
- Sept. 18 **the Greek astronomical tradition**
CR, 37-41 Ptolemy, Almagest, book I, chap. 7; planetary models
- Sept. 20 **the renaissance in astronomy**
CR, 43 Peurbach, New theoricis of the planets (1475), illustration
D, 15-24, 33-37 [chap. 1, sections II-III + chap. 2, section II]
- Sept. 25 **heliocentrism**
CR, 45-57 Copernicus, On the revolutions (1543): 'To his holiness' +
 bk. I, intro + chap. 10; diagrams
D, 33-37 [chap. 2, section II]
- Sept. 27 **responses to heliocentrism**
CR, 45-46, 59 Copernicus, On the revolutions (1543), prefatory matter;
 Tycho Brahe material
D, 41-45; 74-78, 101-104 [ch. 2, section IV; ch. 4, section III (Kepler); ch. 6, section I]
- Oct. 2 **heliocentrism**
CR, 61-76 Kepler illustrations; Galileo, Sidereal messenger (1610) + diagrams
D, 65-73 + 104-8 [ch. 4, sections I-III + ch. 6, section II]
- Oct. 4 (Th) Special Collections introduction (meet in Memorial Library)
- Oct. 9 (Tu) Special Collections workshop (meet in Memorial Library)
- Oct. 11 (Th) Special Collections group project (meet in Memorial Library)
- Oct. 16 (Tu) **science in print (I) : class presentations**
Oct. 18 (Th) **the Galileo affair (I) / exam 1 due in class**
CR, 77-84 timeline; Castelli-Galileo letters (1613)
 Council of Trent decrees

