

INTEGRATED LIBERAL STUDIES 201
Western culture: Science, technology, and philosophy I
 Spring 2003
 Lectures: 1:00-2:15 TR
 1111 Humanities

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COURSE DESCRIPTION

This course is the first part in a three-term sequence that examines the development of science in cultural and intellectual context from antiquity to the twentieth century. The course begins with an examination of perspectives towards the natural world in the poetry, philosophy, and medicine of ancient Greece, and follows the movement of the classical tradition into medieval Islam and Christendom. The final part of the course focuses on the transformation of European science during the 16th and 17th centuries. Throughout our investigation of what 'science' has been in the past, we'll pay particular attention to issues which still have relevance today, such as the interaction between science and religion, the importance of different institutional settings for science, and the relationship between science and government.

This class emphasizes the skills of analyzing historical documents and of constructing persuasive arguments in answer to historical questions. It is therefore extremely important that you try to 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 lectures and discussion sections.
2. Prepare readings.
3. Grades will be based on class participation in discussion sections, (nearly) weekly quizzes or other exercises in discussion sections, and 3 essay exams (2 in-class exams and 1 take-home exam). Grades will be calculated using the following rough guidelines:

class participation	~10%
quizzes (in discussion sections)	~20%
exam 1 (in class, Tuesday, February 25)	~20%
exam 2 (in class, Tuesday, April 8)	~20%
exam 3 (due Monday, May 12, by 3:00PM)	~30%

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

COURSE POLICIES

I will make every effort to honor requests for reasonable accommodations made by individuals with disabilities. If you think you 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.

If you need to reschedule an exam due to a religious observance, please let me know within the first two weeks of class. If you must miss an exam in the course of the semester due to other unavoidable circumstances (such as a university-approved athletic trip, medical problem or family emergency) you should notify me, preferably in advance, so that we can make arrangements for you to take a makeup exam within a week of the originally scheduled date. If you miss an exam and do not contact me about a makeup exam by the following day, you will not be able to take a makeup exam.

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 or to your TA if you have any questions about how to properly cite sources in your written work.

TEXTBOOKS You may purchase the textbooks or consult them on reserve [College Library, H. C. White Hall].
CR = Course Reader [purchase at Campus Copy Services, lower level of The Den, 555-B State Street]
L = David C. Lindberg, The beginnings of Western science (1992) [purchase at the University Book Store]
D = Peter Dear, Revolutionizing the sciences (2001) [purchase at the University Book Store, 711 State Street]

- Jan. 21 **introduction / Homeric and Milesian world views**
 CR, 1-7 Homer, The Odyssey, selections; Milesians
 L, 1-4, 21-29
- Jan. 23 **Greek medicine**
 CR, 8-17 healing cults; 'The sacred disease'
 L, 111-19
- Jan. 28 **Greek natural philosophy**
 CR, 18-21 Eleatics, pluralists, and atomists
 L, 29-35
- Jan. 30 **film: 'The Matrix' (1999)**
- Feb. 4 **Plato**
 CR, 22-29 Plato, Republic and Timaeus, selections
 L, 35-45
- Feb. 6 **Aristotle (I)**
 CR, 30-33 Aristotle, Physics, book II, chaps. 3, 7-8
 L, 47-54
- Feb. 11 **Aristotle (II)**
 CR, 30-33 Aristotle, Physics, book II, chaps. 3, 7-8
 L, 54-68
- Feb. 13 **the Greek cosmological tradition**
 CR, 34-39 diagrams; Ptolemy, Almagest, bk. I, chaps. 2-4
 L, 41-43, 89-92
- Feb. 18 **the Greek astronomical tradition**
 CR, 36, 40-44 Ptolemy, Almagest, bk. I, chap. 7;
 Eudoxus' + Ptolemy's planetary models
 L, 92-105 [NB: diagrams in CR, 42-44 = L, 100-104]
- Feb. 20 **Hellenistic natural philosophy**
 CR, 45-53 Pliny the Elder, Natural history, selections
 L, 69-83, 133-49
- Feb. 25 **EXAM 1** (in class)
 Feb. 27 **the rise of the medieval university**
 CR, 54-55 Abelard, Anselm, and Bernard of Clairvaux
 L, 151-59, 183-203, 206-213
- March 4 **Greek learning in the Middle Ages (I)**
 CR, 56-58 reaction to Aristotle, documents #10-12
 L, 161-70, 203-206
- March 6 **Greek learning in the Middle Ages (II)**
 CR, 58-64 reaction to Aristotle, document #13; illustration
 L, 215-52
- March 11 **scientific renaissance: medicine**
 CR, 65-89 Vesalius, On the fabric of the human body (1543), selections
 D, 8-9, 30-33, 37-41 [introduction, section III + chap. 2, sections I + III]
- March 13 **scientific renaissance: astronomy**
 CR, 90 Peurbach, New theoric of the planets (1475), illustration
 D, 15-24, 33-37 [chap. 1, sections II-III + chap. 2, section II]
 L, 261-67

- March 18 + 20 SPRING BREAK
- March 25 **Copernicus**
CR, 92-103
D, 33-37 Copernicus, On the revolutions (1543), selections; diagrams
[chap. 2, section II]
- March 27 **responses to heliocentrism**
CR, 91-92, 104 Copernicus, On the revolutions (1543), selections
['To the reader concerning the hypotheses of this work']
and Tycho Brahe
D, 41-45 [chap. 2, section IV]
- April 1 **heliocentrism**
CR, 105-20
D, 65-78, 101-8 Kepler illustrations; Galileo, Sidereal messenger (1610), selections
[chap. 4, sections I-III + chap. 6, sections I-II]
- April 3 **the Galileo affair**
CR, 121-32 Galileo documents
- April 8 **EXAM 2** (in class)
April 10 **the skeptical crisis**
CR, 133-36
D, 80-84 Descartes, Discourse on the method (1637), part 1
[chap. 5, section I]
- April 15 **responses to skepticism**
CR, 137-38
D, 84-86 Descartes, Principles of philosophy (1644/1647), selections
[chap. 5, section II]
- April 17 **mechanical philosophies**
CR, 139-43
D, 86-100 Descartes, The world (1633/1677), chaps. 5-7
[chap. 5, sections III-VI]
- April 22 **Newton**
CR, 144-49
D, 149-62 Newton, System of the world (1685), selections; commentary
[chap. 8, sections I-II]
- April 24 **Newtonianism**
CR, 150
D, 162-67 Newton, 'Query 31,' Opticks (1706/1717), selections
[chap. 8, sections II-III]
- April 29 **experimentation**
CR, 151-57
D, 57-64 + 131-45
handout: 'Third-grade scientists successfully vaporize water,' The onion (11/29/01–12/5/01)
Bacon, 'Preparative,' Great instauration (1620), selections;
Galileo, Dialogue (1632), selections; Sprat, History (1667), selections
[chap. 3, sections III-IV + chap. 7, sections I-III]
- May 1 **the social organization of science (I)**
CR, 158-160
online reading
D, 117-30 'Enquiries for Greenland' (1667);
Woodward, Brief instructions (1696), selections
Philosophical transactions [guide to be distributed]
[chap. 6, section IV on the Royal Society + V]
- May 6 **the social organization of science (II)**
CR, 161-72
D, 114-17 Academy of Sciences statutes; Cassini, 'Voyages' (1684), selections
[chap. 6, section IV on the Academy of Sciences]
- May 8 **science and society**
CR, 173-201
D, 168-70 Bacon, New Atlantis (1627), selections;
Swift, Gulliver's travels (1735), selections
[conclusion]
- May 12 **EXAM 3** (finals week): **due Monday by 3:00PM**