

## **HIS 3463 – 2469 History of Science: Antiquity to Newton**

Prof. María M. Portuondo, Department of History, University of Florida

Class time: MWF 10:40 to 11:30, Tur. 2354

Office hours: Wed. 1:00 to 2:30, Fri. 9:00 to 10:30 and by appointment.

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### **Course Description**

This course is the first half of a survey history of science. The course begins with the astronomy and mathematics of the ancient Babylonians and concludes with the Newtonian synthesis of the 18<sup>th</sup> century. Its focus is on the ideas and traditions that led to the development of science in Western Europe. It is a lecture-based course with two textbooks, supplemented with additional readings intended for class discussion and written assignments.

### **Course Materials**

Required readings for the course are on electronic reserve at the library under the course number or instructor's name. You need to have a GatorID and password to log in. You are also required to have the following books. They are available at Goering's Bookstore:

- 1) Lindberg, David C. *The Beginnings of Western Science*. Chicago: University of Chicago Press, 1992.
- 2) Gregory, Frederic. *Natural Science in Western History*. Volume I. Boston: Houghton Mifflin Co., 2007.

You should also consult periodically the course web site for syllabus updates and other information at <http://www.clas.ufl.edu/users/mport/>.

### **Grading Policy**

The final grade is computed as follows:

Midterm exam (Feb. 24)	35%
Final exam (April 26)	35%
Class Discussion & Assignments	<u>30%</u>
	100%

Your participation in the class discussion sessions is an important part of the grade. You must prepare in advance for the discussion session by doing the assigned readings, preparing answers to the study guideline questions and submitting the written portion of the assignment. You are also required to participate actively in your discussion group.

### **Academic Policy**

I take violations to the University's ethics code seriously and will not tolerate academic dishonesty in this class. This is what constitutes a violation to the ethics policy: cheating on exams, plagiarism, reuse of assignments, improper use of Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition. You must be familiar with the University of Florida ethics code posted in the *Academic Honesty Guidelines*.

Student records are confidential. UF views each student, not their parent(s), as the primary contact for all communication. For more information, see: [www.registrar.ufl.edu/ferpahub.html](http://www.registrar.ufl.edu/ferpahub.html).

Students requesting classroom accommodation must first register with the Dean of Students Office ([www.dso.ufl.edu/drp/](http://www.dso.ufl.edu/drp/)). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

**Week 1**

**January 7, 9, 11 – Ancient Science**

Why study history of science?  
Babylonians and Egyptians  
Ancient Greeks and the Presocratics

Readings:

- 1) Lindberg, Chapter 1.
- 2) Presocratic fragments

**Week 2**

**Jan. 14, 16, 18:**

Pythagoreans and Plato  
Plato's *Timaeus*

Readings:

- 1) Lindberg, chapter 2
- 2) Gregory, chapter 1
- 3) Selections from Plato's *Timaeus*.

**Week 3**

**Jan. 23, 25:**

Aristotle

**Jan. 25: Discussion Session:** Selections from Aristotle

Readings:

- 1) Lindberg, chapter 3
- 2) Chapter 12, pp. 83-91, in Barnes, *A Very Short Introduction to Aristotle*.
- 3) Selections Aristotle from *The Complete Works of Aristotle*. Read:
  - *Parts of Animals*, Book I, chpt. 1 & 5.
  - *Physics*, Book II, chapters 1-3 & 8-9.
  - *On the Heavens*, Book II, chapter 14.

**Week 4**

**Jan. 28, 30 Feb. 1:**

Hellenistic Science  
Ptolemy's Cosmos

Readings:

- 1) Lindberg, chapter 4, 5
- 2) Ptolemy, Preface to *The Almagest*.

**Week 5**

**Feb. 4, 6, 8:**

Rome: Technology & Science  
Latinized Greek Science  
Ancient Medicine

Readings:

- 1) Lindberg chapter 6
- 2) Selections from Hippocratic Writings, "The Oath" and "On the Sacred Disease."

**Week 6**

**Feb. 11, 13, 15:**

Early Christianity and Science  
Latin West Meets the Ancients

**Feb. 13: Discussion Session:** Selections from Pliny & Lucretius

Readings:

- 1) Lindberg chapter 7 & 9
- 2) Selections from Pliny & Lucretius

**Week 7**

**Feb. 18, 20, 22**

Islamic Astronomy & Alchemy

Reading:

- 1) Lindberg, chapter 8

**Friday, Feb. 22: Mid- term Exam**

**Week 8**

**Feb. 25, 27, 29:**

Scholasticism and Natural philosophy  
Religion and Science

Readings:

- 1) Lindberg, chapter 10
- 2) Kibre, Pearl, and Nancy G. Siraisi. "The Institutional Setting: The Universities." In *Science in the Middle Ages*, edited by David. C. Lindberg, 120-44. Chicago: University of Chicago Press, 1978.
- 3) The Condemnation of 1277

**Week 9**

**Mar. 3, 5, 7:**

Medieval Scientific Practices  
Medieval Physics

Readings:

- 1) Lindberg, chapters 11 & 12
- 2) Gregory, chapter 2
- 3) Selections from Buridan and Oresme.

**Mar. 7: Discussion Session:**

Scholasticism

**Week 10**

**Mar. 17, 19, 21:**

Science and the Renaissance  
Exploration and Trade  
The Question of the Scientific Revolution

Reading:

- 1) Gregory, chapter 3.

**Week 11**

**Mar. 24, 26, 28:**

New Astronomy: Copernicus  
Brahe, Kepler

**Mar. 28: Discussion Session:** Preamble to  
*De. Rev.*

Readings:

- 1) Gregory, chapter 5
- 2) *To the Reader Concerning the Hypotheses of this Work* (by Osiander) and *Dedication letter to Pope Paul III* by Copernicus. In, Copernicus, Nicolaus. *De revolutionibus orbium coelestium* 1543.

**Week 12**

**Mar. 31 Apr. 2, 4:**

Galileo: Astronomy and Mechanics  
Science and Patronage  
Astrology, Alchemy and Natural Magic

Readings:

- 1) Gregory, chapters 4 & 6.
- 2) Galileo, *Letter to the Grand Duchess Christina*, 1615.

**Week 13**

**Apr. 7, 9, 11:**

Francis Bacon and Scientific Societies  
Medicine: Vesalius, Harvey and Paracelsus  
Experiments – Chemical Worldview

Readings:

- 1) Gregory, chapter 7.
- 2) Selections from Harvey's *De motu cordis*

**Week 14**

**No class Mon. Apr. 14**

**Apr. 16, 18:**

Mechanical Philosophy  
Newton

Readings:

- 1) Gregory, chapters 7 & 8.
- 2) Selections from Newton's *Opticks* and Letters

**Week 15**

**Monday, Apr. 21**

**Discussion Session:** Newton's letters and his experiments

**Wednesday, April 23**

Newtonian Synthesis & reception

Reading:

- 1) Gregory, chapter 9.

**Wed. 4/23: Hand out take home final exam. Due Wed. April 30 in my office between 10:00 am and 2:00 pm.**