

HPS 2502                    **History of Science I**

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Books ordered:

David Lindberg, *The Beginnings of Western Science*

\*Plato, *Timaeus*

\*JL Ackrill, *A New Aristotle Reader*

\*Galen, *Three Treatises on the Nature of Science*

\*Lloyd, *Hippocratic Writings*

Ptolemy, *Tetrabiblos*

De Lacey O'Leary, *Arabic thought and its Place in History*

David Lindberg, ed. *Science in the Middle Ages*

Edward Grant, *Foundations of Science in the Middle Ages*

\*Grosseteste, *On Light*

\*Hugh of St. Victor, *Practical Geometry*

\*The Book of Causes

\*N Copernicus, *On the Revolutions of the Heavenly Spheres*

\*Kepler, *Epitome of Copernican Astronomy*

Kepler, *Concerning the more certain Fundamentals of Astrology*

You might also consult E.J. Dijksterhuis, *The Mechanization of the World Picture*

From the *secondary sources* you ought to read the relevant sections from the works listed above, before the given topics are covered in lecture.

Note bene: All these books are good and valuable resources, but the ones marked with an asterisk (\*) are primary sources and belong in any educated person's library. All other texts for the course will be provided by photocopy and available for copying in the HOS I course box, in 1017CL.

Syllabus:*These will be updated*

- 26 August            Introduction
- 2 Sept.                Plato, *Timaeus*
- 9                        Aristotle, motion and the cosmos  
*Met* Book I, Chaps. 1,2; Book IV, Chap. IV; Book V,  
Chaps 5,6;Book VII, Chaps 1-4  
*Physics* I, Chaps. 1,2,7, 8; II, Chaps. 1-4, 7-9; IV  
Chaps. 4,10;VIII Chaps. 6, 10.  
*De Caelo* Book I, Chap 2, 9
- 16                      Aristotle, zoology and philosophy of science  
(Allan Gotthelf)  
*Post Anal* , Book I, Chaps. 1-4; II Chaps. 10, 12,.19
- Parts of Animals* Book I, Chap I, Book II, Chap I  
*Generation of Animals*, Book I, Chap. 21-23, Book  
II, Chaps 1, 3.
- 23                      C. Ptolemy and Greek astronomy  
*paper 1 due*        *Almagest*, Book I, 1-9, Book III, 1-9;  
V, 1; Book IX, 1-3  
*Tetrabiblos*, Chapters 1-5.
- 30                      Atomism and its fate (JE McGuire)  
Epicurus, "Letter to Herodotus"  
Lucretius, *De rerum natura*, Book I, sections 1 & 2  
W. Charleton, *Physiologia: Epicuro-Gassendo-  
Charltoniana or Fabric of science natural Uppn the  
hypotheis of Atoms* (1654), Bk II, Ch III, sects I, IV;  
Bk III, Chap XVI (loadstone); Bk IV, Ch II (motion)

- 7 Oct.                    Greek medicine (J.G.Lennox)  
*rewrite 1 due*        Hippocratic papers  
                              Galen
- 14                        Greek Mathematics    (Ken Manders)
- 21                        Islam  
*paper 2 due*        Avicenna, The healing, Metaphysics & The  
                              Deliverance, Psychology (in Hyman and Walsh, eds  
                              *Philosophy in the Middle Ages*)  
                              Averroes, A treatise Concerning the Substance of  
                              the Celestial Sphere (in Hyman and Walsh)  
                              O'Leary, Chapters I, II, V, XI.
- 28                        Impetus and Medieval Motion  
                              Selections from M. Claggett, ed. *The Science of  
                              Mechanics in the Middle Ages*, Part II: Medieval  
                              Kinematics, Chapters 5 & 6; Part II; Medieval  
                              Dynamics, Chapters 7-10.
- 4 Nov.                    Medieval Causality & some mathematics  
*rewrite 2 due*        The Book of Causes  
                              Hugh of St Victor, Practical Geometry
- 11 November        Optics  
*paper 3 due*        Euclid, *Optics*  
                              Ibn al Haitham, (Alhazen),  
                              R. Grosseteste, "On Light"  
                              R Bacon, *Opus maius* (selections) (in Hyman and  
                              Walsh)  
                              Kepler

- 18 N. Copernicus  
*De Revolutionibus*, Book I, 1-12, Book III, 1-12;  
 V, 1-10 (Optional) (Book VI on CD Rom)
- 25 J. Kepler  
*rewrite 3 due New Astronomy*, Part I  
*Harmony of the World*, Book V, Chapter III  
 Epitome of Copernican Astronomy  
 Fundamentals of Astrology
- 2 Dec. G. Galilei  
*paper 4 due Sidereus Nuncius* (also on CD Rom)  
*Dialogo*, Day 1, pp. 1-48, & 101-5; Day 2,  
 pp. 114-40, 168-73; Day 3, pp. 320-336;  
 Day 4, pp. 416-30, 462-5.  
 J, Kepler, *Conversation with Galileo's Sideral  
 Messenger*

**Exam for HPS graduate students, Date to be chosen by students**

### Course Requirements

Topics for papers will be given out the week before they are due. You may, *after consulting with me and receiving permission*, write on a topic of your own choosing.) Papers may be a *maximum* of 4 pages (double spaced, 12 point, Times font) in length.

If you receive less than an A-, the papers must be revised and re-written\*, but rewrites must be turned in as marked on the schedule. If you receive an A or A- you may also re-write.

\*Grades for papers and their rewrites will be averaged.

Students may choose to do a presentation in class (of some of the material for that day, e.g. a proof from Ptolemy) as a substitute for one paper. This must be arranged at least a week in advance, and must be previewed with me, by the Monday of the week of class.

Late papers will not be accepted.

Most often, class will be divided into three unequal parts. The first 10 minutes or so will be class review of what happened the week before. The second part will be a general lecture. The third part, the last half hour or so, will be devoted to looking in some detail at some of the readings assigned for that day.

Students are expected to participate in the discussions comprising the first and third parts.

*10% of your grade will depend on class participation.*