

**ILS 201: Western Culture: Science, Technology, and Philosophy, I
History of Science 201: The Origins of Scientific Thought**

SYLLABUS, FALL 1999

Instructor: Lindberg. TAs: Bashaw, Coulbury, Ford, Freed

Course Format:

Two lectures (50-75 minutes) and one discussion section (with a teaching assistant) per week.

Course Requirements and Grading:

Attend all lectures and discussion sections (don't even consider missing one!); weekly reading. Grading will be based on three take-home essays, weekly (or nearly so) quizzes in discussion section, and discussion section participation. TAs will supply further details.

Required texts:

David C. Lindberg, *THE BEGINNINGS OF WESTERN SCIENCE*.

Richard S. Westfall, *THE CONSTRUCTION OF MODERN SCIENCE*.

A course packet of supplementary materials, available from Bob's Copy Shop (University Square only): Course outlines, primary sources, secondary readings, study questions, review sheets, time lines, and illustrations.

Materials on Reserve (College Library, Helen White Hall):

Marie Boas, *THE SCIENTIFIC RENAISSANCE* (selections also included in course packet).

Thomas Kuhn, *THE COPERNICAN REVOLUTION*.

Stephen Toulmin and June Goodfield, *THE FABRIC OF THE HEAVENS* (selections also included in course packet).

Schedule of Lecture Topics and Assigned Readings:

1. Early Greek Cosmology and Philosophy (Sept. 2, 7).

Required: Lindberg, pp. 1-35; document 1: The Study of History; document 2: Early Greek Thought.

Recommended: Document 3 (Parmenides on Being and Non-Being).

2. Plato's World of Forms (Sept. 9).

Required: Lindberg, pp. 35-45; document 4 (Plato's Allegory of the Cave).

3. Aristotle's Philosophy of Nature (Sept. 14, 16).

Required: Lindberg, pp. 47-77; summary sheets 1, 2. Strongly recommended: Lindberg, pp. 77-83.

4. Ancient Astronomy (Sept. 21, 23).

Required: Lindberg, pp. 85-105; figs. 1-6 (reader); summary sheet 3. Recommended: Lindberg, pp. 105-110.

5. The Migration of Greek Science (Sept. 28).

Required: Lindberg, pp. 133-182, 203-206; summary sheet 4 (and accompanying map).

6. **Medieval Universities** (Sept. 30).
Required: Lindberg, pp. 183-213.
7. **The Christian Reception of Pagan Learning** (Oct. 5, 7).
Required: Lindberg, pp. 190-97 (for review), pp. 215-244; summary sheet 5.
8. **The Medieval Science of Motion** (Oct. 12, 14).
Required: Lindberg, chap. pp. 58-62 (for review), pp. 290-307; summary sheet 6.
Recommended: Lindberg, pp. 307-315.
9. **The Copernican Revolution** (Oct. 19, 21).
Required: Lindberg, pp. 245-280; document 5 (Toulmin & Goodfield, Fabric, chap. 6, pp. 169-80); figs. 1-7 (reader).
Recommended for those who want or need a fuller exposition: Kuhn, Copernican Revolution, pp. 133-200 (on reserve).
10. **The Reception of Heliocentrism** (Oct. 26).
Required: document 6 (Toulmin & Goodfield, Fabric, pp. 182-89); fig. 8 (reader).
11. **Kepler and the Transformation of Heliocentrism** (Oct. 28, Nov. 2).
Required: Westfall, pp. 3-16; document 7 (Boas, Scientific Renaissance, pp. 287-310); summary sheet 7; figs. 9-10 (reader).
12. **Galileo's Defense of Heliocentrism** (Nov. 4).
Required: document 8 ("Galileo's Defense of Copernicanism"); document 9 (Galileo's Letter to the Grand Duchess); document 10 (The Trial of Galileo); summary sheet 8.
13. **Galileo and the New Mechanics** (Nov. 9, 11).
Required: summary sheets 6, 9-10; document 11 (Toulmin & Goodfield, Fabric, pp. 210-27); document 12 (Galileo's Scientific Method); Westfall, pp. 16-24.
14. **The Organic View of Nature in the Renaissance** (Nov. 16, 18).
Required: Westfall, pp. 25-30. Recommended: Boas (on reserve), pp. 166-177.
15. **Descartes, Gassendi, and the Mechanical Philosophy** (Nov. 23, 30, Dec. 2).
Required: Westfall, pp. 30-42; summary sheets 11, 12, and 13. Recommended for those interested in application of the mechanical philosophy to other scientific subjects: Westfall, 43-50, 65-81.
16. **Mechanics in the 17th Century** (Dec. 7).
Required: Westfall, pp. 120-128; summary sheet 14. Recommended for those who can handle a more advanced discussion: Westfall, pp. 128-138.
17. **Newton and the Triumph of the Modern World View** (Dec. 9, 14).
Required: Westfall, pp. 139-159; summary sheet 15.