

THE SCIENTIFIC REVOLUTION

TEXTBOOKS

- Kuhn, Thomas S. *The Copernican Revolution*.
Westfall, Richard S. *The Construction of Modern Science*.
A course packet available from the History of Science Department office, 7143 Social Science.
- Boas, Marie. *The Scientific Renaissance* (recommended supplementary reading; copies on reserve in the Undergraduate Library (Helen C. White Hall)).
- Kuhn, Thomas S. *The Structure of Science Revolutions* (recommended supplementary reading, esp. for graduate students).

COURSE REQUIREMENTS

Everybody:

1. Never, ever miss a lecture.
2. Read required texts and documents.
3. Participate in class discussions.
4. Most Fridays will begin with a short factual (T/F) quiz--meant to keep you "honest." The two lowest quiz scores will be dropped; if you miss a quiz, that counts for one of the two dropped scores.
5. Two take-home essays about the sixth and twelfth weeks; a third take-home essay will serve as the final exam.
6. In the final tally, quizzes and take-home essays will be of about equal weight in determining your grade for the course. Class participation will also count in the final grading.

Graduate Students:

Attend Hist Sci 623 (Thursday afternoon seminar).

Undergraduates Enrolled for Honors Credit:

Write an essay review (of about 10 pages) of Thomas Kuhn, The Structure of Scientific Revolutions, or propose an alternative topic (which requires approval by the instructor). Due on December 6.

Undergraduates who have previously taken History of Science 201 or ILS 201:

Write an essay review (of about 10 pages) of Thomas Kuhn, The Structure of Scientific Revolutions. Or find two books on (more or less) the same topic in the attached book list, and write an essay review comparing them in terms of purpose, methodology, content, clarity, and style. Books must have the approval of the instructor. Due December 6.

SCHEDULE OF LECTURE TOPICS AND ASSIGNED READINGS

1. **Introduction** (Sept. 3). Required: Summary Sheets 2, 3 (Course Book); also glance at Summary Sheet 1 (Some Useful Definitions) and keep it in mind for future reference.

No class meeting, Monday, Sept. 6: Labor Day.

2. **The Copernican Revolution** (Sept. 8,10,13,15). Required: Kuhn, chaps. 1-2 before Sept. 8 class meeting; chap. 3 after Sept. 10 class meeting; chap. 4, pp. 122-32, and all of chap. 5 before or after Sept. 13 and 15 class meetings; Figs. 1-8 (Course Bk).

3. **The Reaction to Heliocentrism: Tycho Brahe** (Sept. 17). Required: Kuhn, pp. 185-89, 200-209, before Sept. 17 class meeting; Figure 9; Documents 1, 2; Fig. 9.

4. **The Transformation of Heliocentrism: Johannes Kepler** (Sept. 20,22,24). Required: Document 3; Westfall, pp. 3-12; Summary Sheet 4; Figures 10-11.

5. **Galileo's Defense of Heliocentrism** (Sept. 27,29). Required: Documents 4, 5; Kuhn, pp. 219-225; Westfall, pp. 12-16; Summary Sheet 5.

6. **Galileo and the New Mechanics** (Oct. 1,4,6). Required: Docs. 6 (before Oct. 1 lecture: pp. 92-98 required, 90-91 recommended) and 7; Westfall, pp. 16-24; Summary Sheets 6, 7.

7. **The Organic View of Nature in the Renaissance** (Oct. 8,11,13). Required: Westfall, pp. 25-30; Doc. 8.

About Oct. 15: first take-home essay due.

8. **Skepticism in the Renaissance** (Oct. 15). Required: Document 9; Summary Sheets 8, 9, 10.

9. **Descartes and the Mechanical Philosophy** (Oct. 18,20,22). Required: Westfall, pp. 30-39; Documents 10, 11; Summary Sheet 11.

10. **Gassendi's Alternative Mech. Phil.** (Oct.25,27). Required: Westfall, pp. 39-42; Summary Sheet 12.

11. **Optics before Newton** (Oct. 29, Nov. 1). Required: Westfall, pp. 50-56; Summary Sheet 13.

No class meeting, Friday, November 5.

12. **Newton's Optics** (Nov. 3,8). Required: Westfall, pp. 56-64; Document 12 (before Nov. 3 lecture); Summary Sheet 14.

13. **Galenic Anatomy and Physiology** (Nov. 10). Required: Document 13; Fig. 12.

About Nov. 15: second take-home essay due.

14. **Vesalius and the Reform of Anatomy** (Nov. 12,15). Required: Document 14.

15. **William Harvey and the Circulation of the Blood** (Nov. 17,19). Required: Westfall, chap. 5, pp. 82-94; Document 15; Summary Sheet 15. Recommended: Westfall, chap. 5, pp. 94-104; Boas, chap. 9 (on reserve, Undergraduate Library, Helen White Hall).

No class meeting, Wednesday, Nov. 24.

16. **Scientific Method and the Scientific Revolution** (Nov. 22,29, Dec. 1). Required: Document 16; Summary Sheet 16; Westfall, chap. 6, pp. 114-19. Recommended: Westfall, chap. 6, pp. 105-14.

17. **Mechanics in the 17th Century** (Dec. 3,6). Required: Westfall, chap. 7; Summary Sheets 17, 18.

18. **Newton's Principia** (Dec. 8,10,13,15). Required: Westfall, chap. 8; Summary Sheet 19; Document 17.