

**HISTORY 106**  
**INTRODUCTION TO THE HISTORY OF SCIENCE:**  
**THE SCIENTIFIC REVOLUTION**  
**PROFESSOR ROBERT S. WESTMAN**  
**WINTER QUARTER 2014**  
**TU TH 12:30 P.M.-1:50 P.M.**  
**PEPPER CANYON LECTURE HALL 120**

Office: H&SS 4072

Office Hours: Mon., 2–4; often after class on Tuesdays & also by appt.

Instructor's email: [rwestman@ucsd.edu](mailto:rwestman@ucsd.edu)

Grader: Kelly Silva

**Required Reading** (Available at UCSD Bookstore)

**Book Abbreviations in square brackets below [=]**

\*\*Peter Dear. *Revolutionizing the Sciences: European Knowledge and Its Ambitions, 1500-1700*. Princeton Univ. Press, 2001 [=RS]

\*\*René Descartes. *Discourse on Method*. Hackett Publishing Co. [=DM]

\*\*Thomas S. Kuhn. *The Copernican Revolution*. Harvard University Press, 1957 [=CR]

\*\*Galileo Galilei. *Sidereus nuncius or The Sidereal Messenger*. Tr. Albert Van Helden. Univ. of Chicago Press, 1989.

\*\*Additional readings available on "TED", online and Geisel Library (online)

**Recommended Reading.**

–Owen Gingerich. *The Book Nobody Read: Chasing the Revolutions of Nicolaus Copernicus*. New York: Walker, 2004.

**LECTURE TOPICS AND ASSOCIATED READINGS**

**PART I: THE COPERNICAN REVOLUTION.**

1) Introduction.

2) The University Curriculum I: Aristotelian Natural Philosophy

(a) Dear, RS, pp. 1–18; b) Kuhn, CR, ch. 3.

3) The University Curriculum II: The Science of the Stars

(a) Kuhn, CR, chaps. 1, 2; (b) Westman, *The Copernican Question: Prognostication, Skepticism and Celestial Order*, chap. 2, pp. 62–75 [Geisel online]; (c) Dear, RS, pp. 18–29; (d) Animations of planetary motions by Prof. Dennis Duke [Google: "Dennis Duke"> "Almagest Planetary Model Animations"; Scroll down to "II. Stand Alone Versions"]; (d) "Ptolemy": Wikipedia online.

4) Copernicus's Reform: What did he do? Why did he do it?

Read: (a) Dear, RS, pp. 30–45; (b) Kuhn, CR, pp. 123–184; (c) Westman, *The Copernican Question*, chap. 3; (d) Copernicus, *Commentariolus* [Ted]; (e) Dennis Duke Animations

**5) The Copernicans and the Churches: Convincing Catholic Rome and Lutheran Wittenberg**

(a) Westman, "The Melanchthon Circle, Rheticus and the Wittenberg Interpretation of the Copernican Theory" [TED]; (b) Westman, "The Copernicans and the Churches, pp. 76–98" [TED];  
c) Kuhn, **CR**, pp. 185–196.

**6) The First Copernicans, Tycho Brahe and Unexpected, Singular Heavenly Novelties.**

Read:(a) Kuhn, **CR**, 200–209;(b) Dear, **RS**, pp. 76–77.

**7) Kepler: From *the Cosmographic Mystery to the New Astronomy***

Kuhn, **CR**, pp. 209–219; Voelkel, **Kepler**, pp. 24–73 [TED].

**8) Kepler and Galileo: Unexpected, Recurrent Novelties in the Heavens**

Read: (a) Dear, **RS**, pp. 65–79, 101–111; (b) Kuhn, **CR**, 219–225; (c) Galileo, *Sidereal Messenger* (all)

**MID-TERM EXAMINATION: February 18**

**PART II: THE TRANSFORMATION OF 17C NATURAL PHILOSOPHIES**

**9) New Visions and Places of Scientific Authority in the Seventeenth Century**

Read: Dear, **RS**,pp. 111–130; Popkin, **History of Scepticism**, Introd., chap. 1 [TED]

**10) Divine Activity and the Mechanical Philosophy**

Read: (a) Dear, **RS**, pp.pp. 80–100; (b) Kuhn, **CR**, pp.238–242; 252–4;(c) Descartes, **DM** (entire); "Rene Descartes" (Wikipedia online)

SHORT PAPER DUE: March 4

**11) The Science of Politics and the Politics of Experiment: Galileo, Thomas Hobbes and Robert Boyle**

Read: (a) Dear, **RS**, pp. 131–148; (b) W.T. Jones, **A History of Western Philosophy**, vol. 3, pp. 104–114 [TED]; (c) Shapin, "Pump and Circumstance" [TED]; (e) The Principle of the Barometer. Excerpts from Evangelista Torricelli (1644) and Robert Boyle (1660)[TED]

**12) Atheism Resolved: How Sir Isaac Newton Restored Law n'Order to the West'**

Read: (a) Dear, **RS**, pp. 149–170; (b) Kuhn, **CR**, pp. 252–265; (c) Newton Project Website: [www.newtonproject.sussex.ac/prism.php?id=26](http://www.newtonproject.sussex.ac/prism.php?id=26) [Life and Character >"Life and Work at a Glance"; "Personal Life"]

**Grading Requirements**

+**Mid-Term Examination** (25%): Short answer; multiple choice. February 18

+Short Paper (25%): March 4

+**Final Examination** (50%): Essay: Take-home exam

+**Final Examination: Tuesday, March 18, 11:30 a.m.– 2:29 p.m.**