

History 106
**Introduction to the History of Science:
THE SCIENTIFIC REVOLUTION**
Professor Robert S. Westman
Winter Quarter 2010
Tu Th 11-12:20 p.m.
Cognitive Science Building 005

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Office Hours: Wednesdays, 1-3 p.m.; also available after class on most days, for
immediate questions
Instructor's email: rwestman@ucsd.edu

Required Reading (Available at **UCSD Bookstore** and **Blackboard Learning System [BLS]**; formerly known as **WebCT**)
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]
****Other Readings: "Blackboard Learning System" [BLS]**. Enrollment gives you automatic access to BLS. "BLS + number" = Number under which reading is posted. "BLS Supplemental" = Supplemental readings are usually diagrams and are not posted under a numbered week. NOTE: Occasionally, BLS numbers do not correlate properly with week for which they are assigned. In all cases, the number given in the syllabus is the authority of first resort.

Recommended Reading

!David C. Lindberg and Ronald L. Numbers, eds. **God and Nature: Historical Essays on the Encounter between Christianity and Science**. University of California Press, 1986.
!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 Problem

5 Jan. **Introduction. The University: What would you have learned in the 16C? Where would you have learned it?**

7 Jan., 12 Jan. **The University Curriculum I: Aristotelian Natural Philosophy**
(a) Dear, **RS**, pp. 1-18; (b) Kuhn, **CR**, ch. 3

14 Jan. , 19 Jan. **The University Curriculum II: The Science of the Stars**
(a) Kuhn, **CR**, chaps. 1, 2; (b) BLS 2 and 3: Grafton, 22-37; (c) Dear, **RS**, pp. 18-29; (d) BLS "Supplemental" : Animations of planetary motions by Prof. Dennis Duke [Google: "Dennis Duke"> "Almagest Planetary Model Animations"; Scroll down to "II. Stand Alone Versions"; OR, directly on BLS Supplemental]; (e) BLS 2: Ptolemy, *Almagest*, selections. <http://www.scri.fsu.edu/~dduke/models>

21, 26, 28 Jan. **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) BLS 3: Westman, "Copernicus and the Crisis of the Prognosticators"; (d) BLS 3: Copernicus, **Commentariolus**; (e) BLS Supplemental: Duke Animations [same link as above]

>>>> **Examination I: (in-class)** <<<< February 2

Part II: Conflicted Modernizers, Singular and Recurrent Novelties

4 Feb. **The Copernicans and the Churches: Convincing Catholic Rome and Lutheran Wittenberg**

(a) BLS 4: Westman, "The Melanchthon Circle, Rheticus and the Wittenberg Interpretation of the Copernican Theory"; (b) BLS 4: Westman, "The Copernicans and the Churches"

9 Feb. **Kepler: From the *Cosmographic Mystery* to the *New Astronomy***

Kuhn, **CR**, pp. 200-219; BLS 6: Voelkel, **Kepler**, pp. 24-73

11 Feb. **Kepler and Galileo: Unexpected Novelties in the Heavens**

Read: (a) Dear, **RS**, pp. 65-79, 101-111; (b) Kuhn, **CR**, 219-225; (c) : BLS 6: Galileo, *Sidereal Messenger* (excerpts). d) Consult "The Galileo Project" online: <http://galileo.rice.edu/>

>>>> **Examination II: (in-class)** <<<< February 16

Part III: From Philosophizing Astronomers to New-Style Natural Philosophers

18 Feb. **New Visions and Places of Scientific Authority in the Seventeenth Century**

Read: Dear, **RS**, pp. 111-130; BLS 8: Richard Popkin, **History of Scepticism**, Introd., chap. 1

23, 25 Feb.; 2 March **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)

4 March **The Science of Politics and the Politics of Experiment: Galileo, Thomas Hobbes and Robert Boyle**

Read: (a) Dear, **RS**, pp. 131-148; (b) BLS 9: W.T. Jones, **A History of Western Philosophy**, vol. 3, pp. 104-114; (c) BLS 9: Shapin, "Pump and Circumstance"; (d) BLS 9: The Principle of the Barometer. Excerpts from Evangelista Torricelli (1644) and Robert Boyle (1660); (e) Consult the Boyle website: <http://www.bbk.ac.uk/boyle>. Home > Learn about Boyle > Robert Boyle: a life in pictures.

9, 11 March **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) BLS 10: Newton, "System of the World," 253-274. d) Consult "The Newton Project" website: <http://www.newtonproject.sussex.ac.uk/prism.php?id=26>

Grading Requirements : Exams I and II are in-class: multiple-choice/short-answer style. The final exam is essay-bluebook.

- +**Examination I** (25%): February 2 [four weeks after start]
- +**Examination II** (25%): February 16 [two weeks after first exam]
- +**Final Examination** (50%): March 18 [four weeks after second exam]

+**Final Exam Date: March 18, 11:30 a.m.-2:30 p.m.**