

**Science in China and the West:
From Ancient Times to the Seventeenth Century**

HISC110, HIEA124
Spring 1999 UCSD
T, Th 12:45-2:05
CSB 004

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Required books and reader:

G.E.R. Lloyd. *Adversaries and Authorities: Investigations into Ancient Greek and Chinese Science*. Cambridge, England: Cambridge University Press, 1996.
James M. Lattis. *Between Copernicus and Galileo: Christoph Clavius and The Collapse of Ptolemaic Cosmology*. Chicago, Illinois: University of Chicago Press, 1994.

These two books are available only at Groundworks. The reader will be on sale in class or through University Reader Printer Services. All books and the reader for this class will be available through reserves at Geisel.

Assignments:

Two essay responses to readings: due week 4, Thurs. April 27,	10%
and week 9, Thurs. June 1.	10%
Open book in-class mid-term: Tuesday, May 9th, 12:45-2:05, CSB 004	30%
Open book final: Tuesday, June 12th, 11:30-2:30, CSB 004	50%

Writing Guidelines for responses to readings: Respond to the readings critically first by summarizing in each case what the authors argue regarding science in China or Europe, citing a few examples based on the readings, and judging whether or not you are convinced by the author's arguments. Each essay should be between 3-4 pages. Essay A and B are intended to help you prepare in advance for the mid-term and the final. The following questions are meant as guidelines for your essays.

Essay A: According to what you have read by and about Joseph Needham, how does Lloyd's approach to comparing Chinese and Greek science differ from Needham's approach in *Science and Civilization in China*? According to Lloyd, how did the Greek and Chinese styles of debate and strategies of persuasion differ? How did each culture conceptualize opposites differently? Use specific examples from both the Greek and Chinese primary sources in your reader to illustrate the points Lloyd made. Conclude with your own assessment. Are you convinced or not by Lloyd's arguments?

Essay B: How would you characterize the differences between the astrological culture in Europe and China based on your reading of Ficino's *Three Books on Life* for Europe and Smith and Nakayama for China? With this as a background explain why the writings of Christoph Clavius best represent the new sixteenth-century Jesuit astronomy and cosmology? What then was the "Jesuit Science" the first Jesuits brought with them to China? Use examples from the book, reader, and/or lecture notes to illustrate your points.

Topic 1	Cross-Cultural Comparisons of Science	
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April 4	Tues	Introduction to course and Video: <i>The Genus That Was China</i>
April 6	Thurs	The Needham Question

Reader: 1. Needham, "Science and China's Influence on the World," 234-308.
2. Peter Richards, "Builder of Bridges," *Cambridge Alumni Magazine*, 15-18.
3. Timothy Brook, "The Sinology of Joseph Needham," *Modern China*, 340-347.

Topic 2	Beyond the Needham Question	
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April 11	Tues	The Scientific Revolution Circa 1950s
April 13	Thurs	Adversarial Natural Philosophy

Book: Lloyd, ch. 2 "Adversaries and authorities," 21-46 and
ch. 6 "Greek and Chinese dichotomies revisited," 118-139.
Reader: 4. Wm. Theodore de Bary, ch. VIII, "The Universal Order," 184-210.
5. Lloyd Reader, "Chronological Table," ch. 1, "The Background and the
Beginnings," 1-15, *Ancient Culture and Society*.

Topic 3	Epistemology and Proof	
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April 18	Tues	Reason and Experience
April 20	Thurs	Proof and Persuasion

Reader: 6. Lloyd, ch. 3, "The Pythagoreans," 24-35, and ch. 8, "Aristotle," 99-124.
7. Aristotle, *Posterior Analytics Topica*, 31-43.
8. *The Thirteen Books of Euclid's Elements*, 153-155.
Book: Lloyd, ch. 3, "Methodology, epistemology, and their uses" 47-73 and
ch. 4 "The techniques of persuasion," 74-92.

Topic 4	The Heavens	
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April 25	Tues	Greek Heavenly Harmonies
April 27	Thurs	Chinese Heavens

Essay A due in class Thursday.

Reader: 9. Lloyd, ch. 7, "Fourth-Century Astronomy," 80-98.
10. *Ptolemy's Almagest*, "Book I: Preface," 35-37; and 11. *Tetrabiblos*, 3-39.
12. Cullen, "Preface," and "The background of the *Zhou bi*," xi-xiv, 1-20.
13. Chen, "Early Chinese Work on Astronomy," 113-125.
Book: Lloyd, ch. 8, "Heavenly harmonies," 165-189.

Topic 5	Medicine and the State	
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May 2	Tues	Politics of Medicine in Ancient China
May 4	Thurs	Macrocosm-Microcosm Model of the Human Body

Reader: 14. Lloyd, ch.5, "The Hippocratic Writers," 50-65, *Ancient Culture and Society*.
15. Sivin, "Text and experience in classical Chinese medicine," 177-203.
16. Kuriyama, "Visual knowledge in classical Chinese medicine," 205-233.
17. Chs. 5-6, 8, *Inner Canon of the Yellow Emperor*, 17-29, 34-35.
Book: Lloyd, ch. 9, "The politics of the body," 190-208; and ch. 10 "Science in
Antiquity: The Greek and Chinese Cases and their relevance to the problem of
culture and cognition," 209-227.

May 9 Tues Mid-term: open book, reader, and class notes.

Topic 6 Printing and Knowledge about Nature in China and Europe

May 11 Thurs Printing and Publishing in Medieval China

May 16 Tues What Was the Printing Revolution in Early Modern Europe?

Reader: 18. Twitchett, *Printing and Publishing in Medieval China*.

19. Needham, "Contribution of Paper and Printing to World Civilization," 360-83.

20. Sung Ying-hsing, "Paper," and "Vermillion and Ink," 223-231. 279-287.

21. Eisenstein, *The Printing Revolution in Early Modern Europe*, chs. 2-3, 12-91.

Topic 7 Astrological Culture in Europe and China

May 18 Thurs Marsilio Ficino's Astrological Magic

May 23 Tues Divination and Astrology in China

Reader: 22. Selections from Ficino, *Three Books on Life* (see Reader for pages).

23. Richard Smith, ch. 1, "Viewing the Flowers from the Horseback," 13-47.

24. Nakayama, "Characteristics of Chinese Astrology," *ISIS*, v. 57, 1966: 442-54.

Topic 8 Jesuit Astronomy and Cosmology

May 25 Thurs Clavius' World Picture (read chs. 1-2, 5)

May 30 Tues Jesuit Cosmology Under Siege (read chs. 6-7)

Book: Lattis, James. *Between Copernicus and Galileo: Christoph Clavius and the Collapse of the Ptolemaic Cosmology*. (Read chapters 1-2 and 5-7).

Topic 9 Jesuits in China

June 1 Thurs Early Modern World Systems in China

Essay B due in class Thursday.

June 6 Tues Disputations in the Chinese Imperial Astronomical Bureau

Reader: 25. Spence, "Schall and Verbiest: To God Through the Stars," 3-33.

26. Selections from the Journals of Matteo Ricci, 325-332, 471-478.

27. Sivin, "Copernicus in China," 1-53.

28. Pingyi Chu, "Scientific Dispute in the Imperial Court: The 1664 Calendar Case," *Chinese Science* 14 (1997): 7-34.

Topic 10 Conclusions on Comparing Science in China and Europe

June 8 Thurs Comparisons of Science Revisited

Book: Lloyd, ch. 1. "Comparative studies and their problems: methodological preliminaries," 1-19.

FINAL June 12 Tuesday, 11:30-2:30, CSB 004