



# 14SP\_GSTS\_250\_A China, Science and Mathe...

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## Syllabus

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Global Science,

Technology, & Society:

China and the West

Spring 2014

Fulfills Non-Lab Science Requirement

### GENERAL SCOPE OF GLOBAL SCIENCE, TECHNOLOGY, AND SOCIETY STUDIES

This is the only required course in an innovative minor at Austin College called Global Science, Technology, and Society. There is a complex relationship between science and society, and this relationship is global in scope. The minor explores this relationship both in contemporary societies and from a historical perspective. The general goals of the minor are to:

- understand the practice and philosophy of science,
- explore how societal and historical forces shape, and are shaped, by science, its boundaries, its implementation, and its use,
- examine ethical questions about the use of science and technology,
- explore multicultural and international approaches to science in a global context, including how differences of culture, class, gender, and ethnicity affect how science is practiced

### COURSE CONTENT AND OBJECTIVES

I have chosen this year to address these goals in an investigation of the interrelationship of Western and Chinese science and mathematics. Until recently studies in this area had contrasted what was viewed as a supposedly progressive, rational and universal Western science with a supposedly stagnant, despotic, intuitional East. Historians of science today have a less parochial and more nuanced view of the emergence of science. Scientific activity is viewed as just one interdependent facet of a society's quest for knowledge, without sharply demarcated boundaries. What might qualify as science depends in part on the historical moment within any given developing culture. Indeed, modern researchers are grateful for the opportunity to study and compare scientific knowledge development in the Western world and in China. The hope and expectation is that this comparative study of societal origins will give all of us – in the West and in the East – a deeper appreciation of modern science.

In this course we will identify divergences in the development of science independently as well as in collaboration with Western science. We will begin by looking at the content and societal context of ancient Chinese and ancient Greek astronomy and mathematics. Later, we will ask, for example, what was the impact in early eighteenth-century China of the Jesuit expertise in Renaissance scientia, which included training in astronomy, mathematics, and global geography? Rather than labeling the early modern European tradition in natural studies “science” and dismissing such interests in late imperial China as “magic” or “superstition,” we will seek to address each on their own terms and their overlapping scope.

Other research reveals philosophical differences in the institutions of these civilizations, some giving weight to non-empirical notions of reality and nature, and ethical and religious ideals. These accounts, whatever their differences, all share fundamental assumptions about science, civilization, and their relationship and have their effects on technology, cultural traditions and societal norms. This course will reflect on how China and the West have come to terms with their natural, spatial and cultural environments, colliding and yet meeting each other in history, creating imagined communities and geopolitical boundaries, through their developments of science and technology. This interdisciplinary course examines the history of scientific thought and mathematics in China and the West through cultural traditions and scientific and technological developments.

This course will examine key topics including technologies of writing, bronze casting and divination; astronomy, cosmography and optics; astrology, geomancy and geography; alchemy; Daoism, Buddhism and the manipulation of time; bodily and interspecies transformation and nature; traditional Chinese medicine (TCM) and Daoism; the empirical meeting of TCM and Western medicine; and the ideologies of science in China and the West.

### **COURSE LOCATION AND MEETINGS**

All course meetings will begin at 1:30 PM in IC 169 and will usually finish at 2:50 PM. **You are expected to bring to class the readings for that day; and all reading assignments should be completed for the class for which they are assigned.**

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### **TEXTS**

Patricia Ebrey, *The Cambridge Illustrated History of China* (2nd. Edition), ISBN 9780521124331.

Simon Winchester, *The Man Who Loved China: The Fantastic Story of the Eccentric Scientist Who Unlocked the Mysteries of the Middle Kingdom*. Harper, 2008. ISBN 9780060884611.

Geoffrey Lloyd and Nathan Sivin, *The Way and the Word: Science and Medicine in Early China and Greece*. Yale University Press, 2003. ISBN-10: 0300101600

**OTHER READINGS.** You will be expected to access some readings through links on the Schedule page of the course moodle website.

### **COURSE REQUIREMENTS**

**ATTENDANCE.** Regular attendance is expected at all scheduled class meetings (both lecture and discussions) and will be recorded at the beginning of each meeting. It is your responsibility to ensure that your attendance is accurately recorded. If you miss class, or know you are going to miss a future class, you need not offer us an explanation or excuse; we trust you have a good reason. However, if you must be away from class for an extended period (more than three consecutive classes), please inform us well in advance.

1-3 Missed Classes: No Penalty

After three absences, five points will be deducted from your Final Grade for **EACH** missed class.

**EXAMS and QUIZZES**

The exams and quizzes will include questions of varying format: short answer, identification, and brief discussion. You will be tested on your ability to understand the material, rather than solely on your ability to memorize information, though important facts must be mastered to do well.

**CLASS DISCUSSIONS**

Many class periods will be used for the purpose of student discussion and debate, on a rotating basis, of reading and lecture material. In many instances discussion roles will be assigned, and student preparatory notes will be made available to the class. Specific guidelines will be distributed for each of these discussions.

**GRADING**

Grades will be dependent upon participation (35%), quizzes (30%) and one exam (35%). The participation grade will be based upon class attendance and active involvement in class discussions. There will be one scheduled exam at the end of the semester. **If you miss the exam or a quiz for an unacceptable reason, an automatic grade of zero will be recorded for that exam or quiz.** Missed exams or quizzes cannot be made up unless there is a major emergency or illness that could not be prevented, which must be verified by an official note that attests to the circumstances, and is accepted by the instructor.

**In summary:**

<b>Class Participation:</b>	<b>35%</b>
<b>Quizzes</b>	<b>30%</b>
<b>Exam</b>	<b><u>35%</u></b>
	<b>100%</b>

The dates for the quizzes and exam are on the course syllabus.

**Academic Integrity**

Austin College has a firm policy on academic integrity. Students are expected to be familiar with this policy, and to uphold all aspects. Depending on the severity of the offense, as determined by the professor, academic integrity violations will result in either a "0" on the assignment, a drop from the course, or a final grade of "F" in the course.

**Disability Accommodations**

Austin College is committed to making reasonable accommodations for students with documented disabilities in accordance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, and the ADA Amendments Act of 2008. To arrange for accommodations, students must contact the Director of the Academic Skills Center at 903.813.2454 or visit the ASC in Suite 211 of WCC.

**CLASS ETIQUETTE & CONDUCT**

A. Keep cell phones turned off and out of sight during class. Do not "text" during class. If you have an emergency situation, speak with one of the professors ahead of class for permission to keep your cell phone visible.

B. Come to class on time: that is, be in your seat ready to start class no later than 1:30.

Persistent lateness might affect your Participation grade. If, however, you on some occasion are going to be late, come to class anyway (and come

in quietly). It is better to be in class for 30 minutes than not at all.


C. Do not leave the classroom during lectures/discussions.

D. Complete reading assignments before their discussion in class.

E. Respect the rights of others by refraining from talking (unless recognized by the instructors) while class is in session. Do not read during class any material not under discussion in that class session.

F. Get permission from one of the professors before bringing visitors to class.

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 Moodle Docs for this page

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