



蘇州大學
Soochow University

MAT 127 Mathematics in Ancient China and World

Summer 2024

Course Credits: 4

Contact Hours: 56 hours

Instructor: TBA

Email: TBA

COURSE OBJECTIVES

This course offers an introduction to the history of ancient Chinese and world mathematics, tracing the evolution of mathematical concepts, theories, and applications from ancient civilizations to modern times. Through enhancing students' Chinese reading and writing ability, the course explains how and why mathematics developed as it did in China, and often in ways strikingly different from its Western counterparts. Key topics include numerical systems, algebra, geometry, calculus, and their historical contexts.

Upon Completion of this Course, students will be able to:

1. Demonstrate a comprehensive understanding of the historical development of mathematical concepts in ancient China and other civilizations.
2. Critically evaluate the contributions of ancient Chinese mathematicians to the advancement of mathematical knowledge.
3. Analyze the interconnections between ancient Chinese mathematics and mathematics from other cultures.
4. Fulfill Chinese reading and writing proficiency through close reading and comprehensive exams.
5. Apply historical perspectives to contemporary mathematical problems and practices.

PREREQUISITES

None



GRADING

Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

ITEM	POINTS
Participation	5 Points
3 Reading & Writing Quizzes	30 Points
Presentation	10 Points
Midterm	20 Points
Term Paper	10 Points
Final Exam	25 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F.$$

We reserve the right to make adjustments to the overall grading policy.

COURSE MATERIALS

Required Texts:

A History of Mathematics, Third Edition, Carl B. Boyer, Uta C. Merzbach, Wiley, Year: 2011.

Chinese Mathematics. A Concise History. By Li Yan and Du Shiran, Oxford: Clarendon Press, 1987.

Recommended (Optional) Texts or Other Materials:

None.

COURSE TOPICS

MODULE	TASKS
Module 1	Topics:



	<p>Topic 1: The beginnings of mathematics</p> <p>Topic 2: Mathematical knowledge in ancient texts before the Qin Dynasty</p> <p>Topic 3: The formation of mathematical systems in ancient China (Han Dynasty)</p> <p>Topic 4: Calculations with fractions in the Zhubi suanjing</p> <p>Topic 5: The Gougu theorem and its use in surveying</p> <p>Assessments:</p> <p>Reading & Writing Quiz 1</p>
Module 2	<p>Topics:</p> <p>Topic 6: The development of mathematics in China during the Wei, Jin, and North and South Dynasties</p> <p>Topic 7: The first entry of Western mathematics into China</p> <p>Topic 8: Euclid's and Xu Guangqi</p> <p>Topic 9: Li Zhizao and the Epitome of Practical Arithmetic</p> <p>Topic 10: Mei Wending and his mathematics</p> <p>Assessments:</p> <p>Reading & Writing Quiz 2</p>
Module 3	<p>Topics:</p> <p>Topic 11: Emperor Kang Xi and the Collected Basic Principles of Mathematics</p> <p>Topic 12: The thorough study of Western and Chinese mathematics</p> <p>Topic 13: Ancient Egypt</p> <p>Topic 14: Mesopotamia</p> <p>Topic 15: Hellenic Traditions</p> <p>Assessments:</p> <p>Midterm</p>
Module 4	<p>Topics:</p> <p>Topic 16: Euclid of Alexandria</p> <p>Topic 17: Ancient and Medieval India</p> <p>Topic 18: The Islamic Hegemony</p> <p>Topic 19: The European Renaissance</p> <p>Topic 20: Probability</p> <p>Assessments:</p> <p>Presentation</p>
Module 5	<p>Topics:</p> <p>Topic 21: The Theory of Numbers</p> <p>Topic 22: Geometry</p> <p>Topic 23: Algebra</p> <p>Topic 24: Calculus of Functions</p> <p>Topic 25: Analysis</p> <p>Assessments:</p> <p>Term Paper</p>



ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

LEARNING REQUIREMENTS

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

TECHNOLOGY POLICY

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities



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DIRECTLY related to the course (eg., note taking, reading course documents).

ACADEMIC INTEGRITY POLICY

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.

DISABILITY ACCOMMODATION

Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.