

CHES2107 / UGEA2433

An Introduction to the Development of Science and Technology in China

中國科技發展導論

Course Outline

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BASIC INFORMATION

Units	3
Time	Thursdays, 6:30 pm to 9:30 pm
Venue	Lady Shaw LT3 or online via ZOOM
Coordinator	Kenneth Young, kyoung@cuhk.edu.hk

1. INTRODUCTION

This course is offered under dual listing with identical content and assessment schemes:

- as a major elective course CHES2107 in [Chinese Studies](#)
- as an elective course UGEA2433 for [General Education](#) (GE) [Area A](#) [Not for students majoring in China Studies]

The course is offered in English (knowledge of Chinese is not required). The course should be of interest to the following groups of students

- Majors in Chinese Studies. [a]
- CUHK students who wish to take it as a free elective but not as GE [a]
- CUHK students, including non-local and especially international students, to satisfy the GE requirement for Area A [b]
- Incoming exchange students who wish to learn about one aspect of Chinese culture [b]
- Incoming students Stanford [BOSP](#) students [b]

[a] Please register under CHES2107

[b] Please register under UGEA2433

2. COURSE DESCRIPTION

Science and technology in China from antiquity to the present is surveyed through the study of selected topics in some depth. Particular emphasis is given to science and technology as a window to appreciate certain aspects of Chinese culture and history. Two important questions

are explored through contrasting China with the West: the conditions for the development of modern science and the central role of science and technology in modernization.

Specific topics include the following: (1) history of science and technology in the west as background; (2) scientific thought and concepts of nature in ancient China; (3) traditional Chinese mathematics; (4) traditional Chinese astronomy; (5) Chinese medicine: history, philosophy, theory and practice; (6) innovation and progress in pre-modern Chinese technology; (7) early introduction of western science by missionaries and the Needham question; (8) science and technology in the Self-Strengthening Movement and the May Fourth Movement ('Mr Science'); (9) science and technology from 1949 to the 1980s; (10) innovation and technology since the 1980s.

Further course information is available from:

https://gocuhk-my.sharepoint.com/:f:/g/personal/kyoung_cuhk_edu_hk/Era8XTIDatFKtVdmyXIBUn8B-WA5v9jQBg8CGMWckFmJrQ?e=Oj6qfN

3. LEARNING OUTCOMES, LEARNING ACTIVITIES AND ASSESSMENT

3.1 Goals and learning outcome

After taking the course, students should have gained, through an acquaintance with the history of science and technology in China, one perspective of Chinese culture and history. Through contrasting China with the West, students should have been challenged to reflect upon the conditions for the development of science in any society, and the central role of science and technology in modernization — including modernization as a key narrative of Chinese history from the mid-19th century to the present.

3.2 Learning activities

The class will be conducted in weekly 3-hour blocks (6:30 pm to 9:30 pm).¹ Each 3-hour block will be divided between lecture and discussions in roughly equal proportions.

3.3 Assessment

50%	Term paper
25%	Quiz. There will be 5 short quizzes in 5 of the 13 weeks (unannounced) on the assigned reading (for that and possibly the preceding weeks). The best 4 quizzes out of the 5 will count equally. (In effect, one unexcused absence is allowed.) This is intended to ensure that students read the material before coming to class.
25%	Class discussion. This will include (a) contribution to the class discussion; (b) responses to oral questions in those weeks when there is no written quiz; and (c) performance in the final week designated for overall discussion/ presentation.

¹ The evening schedule is dictated by the common availability of all teachers.

Alternate assessment scheme

The University has announced (20 July 2020) that Term 1 of 2020–21 (i.e., starting in September 2020), all class will be conducted online until further notice. In these circumstances, the following arrangements will be made for the course assessment.

- Quizzes will be conducted during the online class session (usually towards the end) using a suitable electronic platform. The short quizzes will be invigilated via ZOOM, and students are required to have video cameras switched on and showing their faces and desks.
- Online class attendance is required, and class participation will be logged and will contribute to the 25% as originally planned.
- There will be no change to the term paper.
- Please watch out for announcements on Blackboard for details and possible amendments in the light of evolving circumstances.

4. CONTENT

Topics for each week are as follows. Please refer to separate document for class schedule, and also outlines for each module (to be made available in phases).

1. Logistics, overview, ancient philosophical traditions
2. Early inventions
3. History of science and technology in the West
4. Scientific thought and concepts of Nature in ancient China
5. Traditional Chinese mathematics
6. Traditional Chinese astronomy
7. Chinese medicine: history, philosophy, basic theory and its practice
8. Innovation and progress in pre-modern Chinese technology
9. Early introduction of Western science by missionaries; the Needham question
10. Science and technology in the Self-Strengthening Movement and the May Fourth movement
11. Science and technology from 1949 to the 1980s
12. Innovation and technology since the 1980s
13. Discussions/ presentations

5. ELECTRONIC PLATFORMS

5.1 Before course starts

Course information is parked at the publicly shared folder:

https://gocuhk-my.sharepoint.com/:f/g/personal/kyoung_cuhk_edu_hk/Era8XTIDatFKtVdmyXIBUn8B-WA5v9jQBg8CGMWckFmJrQ?e=Oj6qfN

5.2 After course starts

The platform **CUSIS** will be used for course management.

Course material (including this document) and announcements will be put on the **CUHK eLearning System**. Students are also required to submit written work through this system (in addition to VeriGuide where needed).

URLs

CUSIS: <http://www.cuhk.edu.hk/cusis/>
ELEARNING <http://www.cuhk.edu.hk/eLearning/>
<https://blackboard.cuhk.edu.hk>

6. BIBLIOGRAPHY

The following general references provide useful background for those who are interested, but are *not* required.

Needham, J (1969). *The Grand Titration: Science and Society in East and West* (London: Allen & Unwin), Chapter 6 “Science and Society in East and West”, pp. 190–217. [Online access through CUHK Library]

Ronan, Colin A. and Needham, Joseph (1978-). *The Shorter Science and Civilisation in China: an Abridgement of Joseph Needham's Original Text* (Cambridge: Cambridge University Press). [UL-DS721.N392]

Required reading for each week will consist of relatively brief lecture notes written for this course, and/or short pieces available electronically. The assigned reading material will be made available weekly on Blackboard. In addition, for at least Week 1 and Week 2, the assigned reading material will also be placed in the publicly shared folder cited in Section 5.1, for the benefit of students who do not yet have access to Blackboard.

7. FEEDBACK AND EVALUATION

The formal Course and Teaching Evaluation (CTE) will be conducted near the end of term.

Because the course is team-taught and spans many different topics, to complement the overall evaluation, simple feedback will be collected at the end of each class.

In addition, students are encouraged to convey comments to the teachers of the individual modules or to the course coordinator.