

The Hong Kong Polytechnic University

Subject Description Form

Please read the notes at the end of the table carefully before completing the form.

Subject Code	CHC1M39P
Subject Title	Science and Civilisation in Pre-Modern China 中國古代科技與文明
Credit Value	3
Level	1
Pre-requisite/ Co-requisite/ Exclusion	Exclusion: CHC1M39, CHC1M39M and CHC327
Objectives	This course introduces the technological and scientific advances, discoveries, and inventions—and the changes in shared social and cultural ideas about science and technology—from antiquity to the late imperial period in China. Two important questions animating this course are: when we foreground science and technology as a window onto Chinese history, how does it look different? How can a study of Chinese science and technology offer theoretical and methodological insights to the Eurocentric question of “why the scientific revolution did not take place in China?” The course is organized thematically, covering prominent topics essential to the history of science, scientific thought and technology in pre-modern China. Course materials include a sourcebook to introduce broad themes, scholarly monographs and articles, primary sources on classic Chinese scientific and technological works, and visual and material artifacts.
Intended Learning Outcomes <i>(Note 1)</i>	Upon completion of the subject, students will be able to: a. Understand Historical Contexts: Students will be able to describe the major technological and scientific advances in imperial China and explain their historical contexts and impacts on society and culture. b. Analyze Cultural Perspectives: Students will critically analyze how shared social and cultural ideas about science and technology evolved in China over time and compare these with contemporary Eurocentric perspectives. c. Evaluate Theoretical Frameworks: Students will evaluate different theoretical and methodological approaches to studying the history of science and technology in China. d. Interpret Primary Sources: Students will develop skills in interpreting primary sources, including classic Chinese

	scientific and technological texts, and use these sources to support historical arguments. e. Communicate Insights: Students will effectively communicate their insights and analyses through written and oral presentations, demonstrating a nuanced understanding of the course material. f. meet the Chinese reading and writing requirements.																																												
Subject Synopsis/ Indicative Syllabus <i>(Note 2)</i>	1. Introduction and Framing 2. Reaching Out to the Sky: Ancient Chinese Astrology and Astronomy 3. Farming is the Base: Agriculture and Agrarian Technologies 4. The Warp and The Weft: Textile Knowledge and Technologies 5. Medicine and Healing (I): Canons and Ideas 6. Medicine and Healing (II): Practices and Techniques 7. The Making of Things (I): Artisans and Scholars 8. The Making of Things (II): Artefacts and Production 9. Food Science and Technology 10. Gendering Science and Technology 11. Jesuit Missionaries and Western Science 12. The Making of “Four Great Inventions” 13. Conclusion: Rethinking Technology, Innovation, and History in China in a Global Context																																												
Teaching/Learning Methodology <i>(Note 3)</i>	Each week, the course will consist of two 50-minute lectures and one 50-minute tutorial. The lectures will utilize a variety of teaching aids, including textual, pictorial, audio, and video materials. At the beginning of the semester, students will choose a topic or issue related to Chinese science and civilization to study, which will form the basis for their oral presentations during the tutorials. At the end of the course, students are required to submit a final written essay, developed from their chosen topic and refined according to the instructor’s feedback.																																												
Assessment Methods in Alignment with Intended Learning Outcomes <i>(Note 4)</i>	<table border="1"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th><th rowspan="2">% weighting</th><th colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th></tr> <tr> <th>a</th><th>b</th><th>c</th><th>d</th><th>e</th><th>f</th></tr> </thead> <tbody> <tr> <td>1. Final Quiz</td><td>30</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td>√</td></tr> <tr> <td>2. Oral Presentation</td><td>30</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td></tr> <tr> <td>3. Final Essay</td><td>40 (10% graded by the CLC and 30% by the subject instructor)</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr> </tbody> </table>							Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)						a	b	c	d	e	f	1. Final Quiz	30	√	√	√	√		√	2. Oral Presentation	30	√	√	√	√	√		3. Final Essay	40 (10% graded by the CLC and 30% by the subject instructor)	√	√	√	√	√	√
Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)																																											
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	Total	100 %	
	Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes: 1. The final quiz, comprising multiple choice questions and short answer questions, will help students gauge the key concepts of technological development and major issues of Chinese culture covered in the lectures. 2. Oral presentations can best assess the students' overall grasp of the knowledge and skills. It is also a best opportunity for students to raise their questions, interact with each other, and actively participate in discussion. 3. The final essay of 2,000-3,000 Chinese characters, done in accordance with the instructor's comments and feedbacks, will best assess the students' consolidation of the knowledge and skills learnt from the subject and their ability to present some particular aspects of the subject. Students must obtain a D or above on the Writing Requirement assignment to pass the subject.		
Student Study Effort Expected	Class contact:		
	▪ Lectures		26 Hrs.
	▪ Tutorials		13 Hrs.
	Other student study effort:		
	▪ Preparation & Participation: Reading and Self-study		42 Hrs.
	▪ Assessment: Report and essay writing		36 Hrs.
	▪ Assessment: Group presentation/Project		12 Hrs.
	Total student study effort		129 Hrs.
Reading List and References	Chinese Required Readings (269 pages in total): 1. 席文(N. Sivin)：「為什麼科學革命沒有在中國發生——是否沒有發生？」，《中國科技史探索》，李國豪、張孟聞、曹天欽主編（香港：中華書局，1986），頁 97-114。 2. 劉鈍、王揚宗編：《中國科學與科學革命——李約瑟難題及其相關問李約瑟難題及其相關問題研究論著選》（瀋陽：遼寧教育出版社，2002），頁 644-664。 3. 汪建平、聞人軍：《中國科學技術史綱（修訂版）》（武漢：武漢大學出版社，2012）頁 247-261。 4. 張培瑜等：《中國古代曆法》（北京：中國科學技術出版社，2008），頁 250-294。 5. 李零：《中國方術正考》（北京：中華書局，2006），頁 1-34。 6. 白馥蘭 (Francesca Bray)：《技術與性別：晚期帝制中國的		

	權力經緯》（南京：江蘇人民出版社，2006），頁 144–159。 7. 費俠莉 (Charlotte Furth)：《繁盛之陰：中國醫學史中的性（960–1665）》（南京：江蘇人民出版社，2006），頁 18–54。 8. 薛鳳 (Dagmar Schäfer)：《工開萬物：17 世紀中國的知識與技術》（南京：江蘇人民出版社，2015），頁 25–60。 9. 韓琦：《通天之學：耶穌會士和天文學在中國的傳播》（北京：三聯書店，2018），頁 38–61。 10. 羅芙芸 (Ruth Rogaski)：《衛生的現代性：中國通商口岸衛生與疾病的含義》（南京：江蘇人民出版社，2007），頁 1–23。 Supplementary Readings: 11. 宋應星：《天工開物》。長沙：岳麓書社，2002。 12. 李約瑟著、陸學善等譯：《中國科學技術史》（多卷）。北京：科學出版社（1976–2018 年）。 13. 李貞德：《女人的中國醫療史——漢唐之間的健康照顧與性別》。台北：三民書局，2008 年。 14. 歐陽泰 (Tonio Andrade)：《從丹藥到槍砲：世界史上的中國軍事格局》。北京：中信出版社，2019。 15. 林郁沁著，陶磊譯：《美妝帝國蝴蝶牌：一部近代中國民間工業史》，上海：上海人民出版社，2023。 16. Bodde, Derk, <i>Chinese Thought, Society, and Science: The Intellectual and Social Background of Science and Technology in Pre-modern China</i>. Honolulu: University of Hawaii Press, 1991. 17. Elman, Benjamin. <i>On Their Own Terms: Science in China, 1550–1900</i>. MA: Harvard University Press, 2005. 18. Elvin, Mark. “The High-level Equilibrium Trap: The Causes of the Decline of Invention in the Traditional Chinese Textile Industries,” in W. E. Willmott, ed., <i>Economic Organization in Chinese Society</i>. Stanford: Stanford University Press, 1972. 19. Needham, Joseph (often with collaborators). <i>Science and Civilization in China</i>. Cambridge: Cambridge University Press, 1954– (in multi-volumes and multi-parts). ———. <i>The Grand Titration: Science and Society in East and West</i>. London; New York: Routledge, 2013. 20. Wilkinson, Endymion. “VII: Technology & Science,” in <i>Chinese History: A New Manual</i> (Enlarged Sixth Edition). MA: Harvard University Asia Center, 2022. 21. Lo, Vivienne and Michael Stanley-Baker, with Dolly Yang, eds. <i>Routledge Handbook of Chinese Medicine</i>. London: Routledge, 2022 (multiple entries on Chinese medicine).
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Note 1: Intended Learning Outcomes

Intended learning outcomes should state what students should be able to do or attain upon subject completion. Subject outcomes are expected to contribute to the attainment of the overall programme outcomes.

Note 2: Subject Synopsis/Indicative Syllabus

The syllabus should adequately address the intended learning outcomes. At the same time, overcrowding of the syllabus should be avoided.

Note 3: Teaching/Learning Methodology

This section should include a brief description of the teaching and learning methods to be employed to facilitate learning, and a justification of how the methods are aligned with the intended learning outcomes of the subject.

Note 4: Assessment Method

This section should include the assessment method(s) to be used and its relative weighting, and indicate which of the subject intended learning outcomes that each method is intended to assess. It should also provide a brief explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes.

(Form AR 140) 8.2020