

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	CHC327
Subject Title	History of Science and Technology in China
Credit Value	3
Level	3
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	<p>This course introduces the scientific and technological advances, discoveries, and inventions—and the changes in shared social and cultural ideas about science and technology—from the early imperial period to the present. Two important questions animating this course are: when we foreground science and technology as a window onto Chinese history and culture, how do they look different? How can a study of the history of science and technology in China offer theoretical and methodological insights to the Eurocentric question of “why modern science had not originated in China?” The course covers a wide range of prominent themes and topics essential to the history of science, scientific thought and technology in 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.</p>
Intended Learning Outcomes <i>(Note 1)</i>	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> a) develop a basic understanding of the evolving historical and cultural contexts for the scientific and technological processes in China; b) reflect critically on the encounters between China and Western science; c) read and analyze historical texts, both primary and secondary, about Chinese science and technology; d) evaluate, create, and communicate historical arguments about the important themes and topics addressed in the course; e) make effective use of textual and visual materials to teach others about their research findings in the history of science and technology in China;
Subject Synopsis/ Indicative Syllabus <i>(Note 2)</i>	<ol style="list-style-type: none"> 1) Introduction and Framing: Beyond “the Needham Question”

	<ol style="list-style-type: none"> 2) Scientific Thought and Concepts of Nature in Pre-Modern China 3) Traditional Chinese Astronomy and Mathematics 4) Agrarian and Textile Technologies 5) Chinese Medicine: Theories, Practices, and Beliefs 6) Artisanry and Craftmanship 7) Gendering Science and Technology 8) Missionaries and Western Science 9) Science and Technology in the Self-Strengthening Movement and the May Fourth movement 10) Scientism as Philosophy and Practice in Republican China 11) Science and Technology from 1949 to the 1980s 12) Science and Technology from the 1980s to the Present 13) Conclusion: Rethinking Technology, Innovation, and History in China in a Global Context 																																																					
<p>Teaching/Learning Methodology <i>(Note 3)</i></p>	<p>The lectures in this course will provide a theoretical framework that covers key themes and concepts relevant to the course subject. They will also offer specific examples and analyses for themes and topics addressed in each session. Tutorials are designed to facilitate students' in-depth discussions of the chosen topics from readings, hone students' public presentation skills, and equip them with critical academic writing skills and practices.</p>																																																					
<p>Assessment Methods in Alignment with Intended Learning Outcomes <i>(Note 4)</i></p>	<table border="1" data-bbox="534 1249 1388 1798"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="5">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> <th rowspan="2"></th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>e</th> </tr> </thead> <tbody> <tr> <td>1. mid-term quiz</td> <td>10%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>2. final-term quiz</td> <td>10%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>3. oral presentation</td> <td>30%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>4. final essay</td> <td>50%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>Total</td> <td>100 %</td> <td colspan="5"></td> <td></td> </tr> </tbody> </table> <p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <ol style="list-style-type: none"> 1. The mid-term and final-term quizzes are ideal forms to directly assess the students' understanding of the historical and conceptual knowledge about science and technology in China. They will not only offer a fun and effective way for the students to command the necessary knowledge and information learned from the 	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)						a	b	c	d	e	1. mid-term quiz	10%	✓	✓	✓	✓	✓		2. final-term quiz	10%	✓	✓	✓	✓	✓		3. oral presentation	30%	✓	✓	✓	✓	✓		4. final essay	50%	✓	✓	✓	✓	✓		Total	100 %						
Specific assessment methods/tasks	% weighting			Intended subject learning outcomes to be assessed (Please tick as appropriate)																																																		
		a	b	c	d	e																																																
1. mid-term quiz	10%	✓	✓	✓	✓	✓																																																
2. final-term quiz	10%	✓	✓	✓	✓	✓																																																
3. oral presentation	30%	✓	✓	✓	✓	✓																																																
4. final essay	50%	✓	✓	✓	✓	✓																																																
Total	100 %																																																					

	<p>lectures but also enable them to acquire a deeper understanding of the course content.</p> <p>2. Oral presentations can best assess the students' overall grasp of the knowledge and skills acquired from lectures and their own readings. It offers opportunities for students to communicate their historical arguments to others, formulate their own questions, and engage in discussions with one another. It also lays foundation for students to undertake independent research.</p> <p>3. The final essay, done in accordance with the instructor's comments and feedback, will best assess the students' grasp of the knowledge, concepts, and ideas learnt from the subject and enhance their ability to articulate their own research findings in written forms.</p>	
Student Study Effort Expected	Class contact:	
	▪ lectures	26 Hrs.
	▪ tutorials	13 Hrs.
	Other student study effort:	
	▪ Reading	38 Hrs.
	▪ Writing	20 Hrs.
	▪ Discussion	8 Hrs.
	Total student study effort	105 Hrs.
Reading List and References	<p>Required Readings Selected readings from the following: Primary Sources:</p> <ol style="list-style-type: none"> 1. 《考工記》 Jun, Wenren. <i>Ancient Chinese Encyclopedia of Technology: Translation and Annotation of the Kaogong ji (the Artificers' Record)</i>. Routledge, 2013. 2. 《天工開物》 Sung, Ying-hsing 宋應星. <i>T'ien-kung K'ai-wu: Chinese Technology in the Seventeenth Century</i>. Trans. and annot. by Sun E-tu Zen and Sun Shiou-chuan. Dover: Pennsylvania State University Press, 1997. 3. 《黃帝內經：素問》 <i>Huang Di Nei Jing Su Wen: An Annotated Translation of Huang Di's Inner Classic – Basic Questions: 2 Volumes</i>. Translated by Unschuld, Paul, and Hermann Tessenow. Berkeley: University of California Press, 2011. 	

	<p>Secondary Sources:</p> <ol style="list-style-type: none"> 1. Barbieri-Low, Anthony. <i>Artisans in Early Imperial China</i>. Seattle: University of Washington Press, 2007. 2. 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. 3. Bray, Francesca. <i>Technology and Gender: Fabrics of Power in Late Imperial China</i>. Berkeley: University of California Press, 1997. 4. Elman, Benjamin. <i>On Their Own Terms: Science in China, 1550–1900</i>. MA: Harvard University Press, 2005. 5. ———. <i>A Cultural History of Modern Science in China</i>. MA: Harvard University Press, 2008. 6. Furth, Charlotte. <i>A Flourishing Yin: Gender in China’s Medical History, 960–1665</i>. 7. 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). 8. 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). 9. Schäfer, Dagmar. <i>The Crafting of the 10,000 Things: Knowledge and Technology in 17th Century China</i>. Chicago: The University of Chicago Press, 2011. 10. Schmalzer, Sigrid. <i>The People’s Peking Man: Popular Science and Human Identity in Twentieth-Century China</i>. Chicago: The University of Chicago Press, 2008. 11. Sivin, Nathan. “Why the Scientific Revolution Did Not Take Place in China—or Didn’t It?” <i>Chinese Science</i> 5 (1982): 45–66 (revised in 2005). 12. Tsu, Jing, and Benjamin Elman, ed. <i>Science and Technology in Modern China, 1880s–1940s</i>. Leiden: Brill, 2014. 13. Wilkinson, Endymion. “VII: Technology & Science,” in <i>Chinese History: A New Manual</i> (Enlarged Sixth Edition). MA: Harvard University Asia Center, 2022.
--	---

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