

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	CHC5214
Subject Title	Science, Technology and Thought in China 中國的科學、技術與思想
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	<p>This subject examines both the scientific and technological processes and the broader intellectual and philosophical ideas that have shaped these developments, spanning from antiquity to the contemporary era. Drawing on cultural history, philosophy, anthropology, and gender studies, this course employs an interdisciplinary approach to examining a wide array of topics concerning science and technology and their meanings and implications in ever-shifting intellectual, cultural, and socio-historical contexts. The course is organized thematically, covering prominent 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> <p>本科目旨在探討從古代到當代的中國科學技術發展過程，以及形塑這些發展的重要哲學理念與思潮。課程將借鑒文化史、哲學、人類學和性別研究，採用跨學科的方法探討科學和技術相關主題，並探究它們在不斷變化的知識、文化和社會歷史背景中的意義和影響。課程將按主題組織，涵蓋中國科學、科學思想和技術史中的重要論題。課程材料包括經典中國科學技術著作的原始文獻，學術專著和文章、以及視覺和物質文物。</p>
Intended Learning Outcomes <i>(Note 1)</i>	<p>Upon completion of the subject, students will be able to:</p> <p>a: develop an in-depth understanding of topics and themes related to the field of science and technology in China;</p> <p>b: understand the intellectual and philosophical underpinnings of Chinese science and technology;</p> <p>c: gain a historical understanding of China's role in the global history of science and technology;</p>

	<p>d: develop critical thinking and hone research skills in the process of reading primary resources and engaging in writing practices.</p> <p>學生修畢此一科目，當能夠達致以下目標：</p> <p>（一）深入了解中國科技概念、專題及相關領域；</p> <p>（二）認識中國科技的知識源流和哲學基礎；</p> <p>（三）從歷史的角度更好地理解中國在全球科技史中的位置；</p> <p>（四）提高研究能力、閱讀理解能力和學術寫作能力。</p>
<p>Subject Synopsis/ Indicative Syllabus</p> <p>(Note 2)</p>	<ol style="list-style-type: none"> 1. Introductions: The “Needham Question” and Beyond (言：李約瑟問題及其延伸) 2. Scientific Thought and Concepts of Nature in Premodern China (中國古代的科學思想與自然觀) 3. The Ordering of Time and Space: Ancient Chinese Astrology and Astronomy (時間與空間的秩序：中國古代占星術與天文學) 4. Governance and Technology: Agricultural and Textile Technologies (治理與技術：農業和紡織技術) 5. Religion and Science: Healing and Medicine (宗教與科學：治療與醫學) 6. Science as Way of Scholarly Knowing: Artisanry and Craftsmanship (科學作為認知方式：工藝與手藝) 7. Gendering Science and Technology (社會性別與科技) 8. Science as Wealth and Power (科技與富強) 9. Scientism as Philosophy and Practice (科學主義的理論和實踐) 10. Ideologies, the Masses, and Sciences (意識形態、大眾與科學) 11. Technocracy, Class, and State (技術官僚制、階級與國家) 12. Cultures of Innovation (創新文化) 13. Rethinking Chinese Science and Technology in National and Transnational Contexts (國族和跨國語境下重新思考中國的科學與技術)
<p>Teaching/Learning Methodology</p> <p>(Note 3)</p>	<p>The subject teacher addresses main issues about science, technology and thought in China through a topic-based approach. A variety of primary and secondary sources, such as archives, pictures, literary works, and cultural relics, will be analyzed to illustrate significant aspects in China’s scientific development. Discussion and other activities will be held to enhance the students’ comprehension of the course content.</p> <p>Students are expected to read materials, participate actively in class discussions and complete assignments in a timely manner. Assignments include oral presentation, quiz and term paper. Class discussion, oral presentation and the readings will help students grasp course content, learn how to analyze written texts, and share academic findings with peers. The term paper, which is the most</p>

	<p>important assignment of this subject, will give students an opportunity to practice and enhance their abilities in identifying topics, forming arguments, collecting and digesting primary and secondary source material, and presenting ideas in a coherent and concise manner.</p> <p>任課老師透過專題探討，分析中國科學、技術及其反映的思想文化。課程將分析多種資料，包括文獻、檔案、圖畫、文物，闡明中國科技發展的重要方面，並進行課堂討論等活動，增強同學對內容的掌握。</p> <p>修課同學需閱讀相關資料，參與課堂討論，並且按時完成三項評分要求——口頭報告、測驗、課程論文。課堂討論、口頭報告和閱讀有助學生充分理解內容，學習如何分析資料，及分享成果。課程論文有助培養同學發現選題、提煉論點、以充分資料論證觀點，及流暢表達等各項能力。</p>																																														
<p>Assessment Methods in Alignment with Intended Learning Outcomes</p> <p>(Note 4)</p>	<table><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></th><th></th></tr><tr><td>1. Oral presentation 口頭報告</td><td>30%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr><tr><td>2. Quiz 測驗</td><td>30%</td><td>✓</td><td>✓</td><td></td><td></td><td></td><td></td></tr><tr><td>3. Term Paper (3500-4000 characters) 期末論文 (3500-4000 字)</td><td>40%</td><td></td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr><tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr></table> <p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>1.Oral Presentation (30%): This will assess the students’ overall grasp of relevant knowledge and skills. Specifically, it will evaluate the student’s ability to analyze a topic and present academic findings. To prepare the presentation, students will need to read multiple sources related to their topics (learning outcome (a) to (c)).</p> <p>2.Quiz (30%): This will assess the students’ comprehension of reading assignments and their ability to reflect on the different topics covered in the assigned readings, lectures and tutorials (learning outcome (a) and (b)).</p> <p>3.Term paper (40%): This will assess the students’ ability to identify topics, collect and analyze source materials, as well as their writing skills (learning outcome (b) to (d)).</p>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)						a	b	c	d			1. Oral presentation 口頭報告	30%	✓	✓	✓				2. Quiz 測驗	30%	✓	✓					3. Term Paper (3500-4000 characters) 期末論文 (3500-4000 字)	40%		✓	✓	✓			Total	100 %						
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	<p>(一) 口頭報告 (30%)，量度同學搜集資料、閱讀理解、分析及表達能力。</p> <p>(二) 測驗 (30%)，量度同學重新認識中國古代歷史的能力、理解能力和課堂學習成果。</p> <p>(三) 期末論文 (40%)，量度同學發現問題、搜集資料、分析論證及書面寫作能力。</p>	
Student Study Effort Expected	Class contact:	
	▪ Lectures	39 Hrs.
	Other student study effort:	
	▪ Reading	40 Hrs.
	▪ Paper writing	41 Hrs.
	▪ Presentation	15 Hrs.
	Total student study effort	135 Hrs.
Reading List and References	<p>Chinese Readings:</p> <ol style="list-style-type: none"> 1. 李約瑟著，張卜天譯：《文明的滴定：東西方的科學與社會》，北京：商務印書館，2016。 2. 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。 3. 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題研究論著選》，瀋陽：遼寧教育出版社，2002。 4. 席澤宗主編：《中國科學技術史：科學思想卷》，北京：科學出版社，2001。 5. 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。 6. 張邦彥：《近代中國的催眠術與大眾科學》，上海：上海人民出版社，2021。 7. 謝健著，關康譯：《帝國之裘：清朝的山珍、禁地與自然邊疆》，北京：北京大學出版社，2019。 8. 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。 9. 墨磊寧著，張朋亮著：《中文打字機：機械書寫時代的漢字輸入進化史》，桂林：廣西師範大學出版社，2023。 <p>English Readings:</p> <ol style="list-style-type: none"> 10. Amelung, Iwo. "Historiography of Science and Technology 	

	<p>in China.” In <i>Science and Technology in Modern China, 1880s–1940s</i>, eds. Jing Tsu and Benjamin A. Elman, 39–66. Leiden: Brill, 2014.</p> <ol style="list-style-type: none"> 11. 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. 12. Bray, Francesca. <i>Technology and Gender: Fabrics of Power in Late Imperial China</i>. Berkeley: University of California Press, 1997. 13. Elman, Benjamin. <i>A Cultural History of Modern Science in China</i>. MA: Harvard University Press, 2008. 14. Elman, Benjamin. <i>On Their Own Terms: Science in China, 1550–1900</i>. MA: Harvard University Press, 2005. 15. Lei, Sean Hsiang-lin. <i>Neither Donkey nor Horse: Medicine in the Struggle over China’s Modernity</i>. Chicago: the University of Chicago Press, 2014. 16. Lindtner, Silivia. <i>Prototype Nation: China and the Contested Promise of Innovation</i>. Princeton, N.J.: Princeton University Press, 2020. 17. 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). 18. Rogaski, Ruth. <i>Hygienic Modernity: Meanings of Health and Disease in Treaty-Port China</i>. Berkeley: University of California Press, 2004. 19. 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. 20. Schmalzer, Sigrid. <i>Red Revolution, Green Revolution: Scientific Farming in Socialist China</i>. Chicago: The University of Chicago Press, 2016. 21. 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. 22. 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). 23. Tsu, Jing, and Benjamin Elman, ed. <i>Science and Technology in Modern China, 1880s–1940s</i>. Leiden: Brill, 2014. 24. Wilkinson, Endymion. “VII: Technology & Science,” in <i>Chinese History: A New Manual</i> (Enlarged Sixth Edition). MA: Harvard University Asia Center, 2022. 25. Wu, Shellen Xiao and Fa-ti Fan, “China.” In <i>Cambridge History of Science</i>, vol. 8, <i>Modern Science in National, Transnational, and Global Context</i>, eds. Hugh Richard Slotten, Ronald L. Numbers, and David N. Livingstone, 521–554. Cambridge: Cambridge University Press, 2020.
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Medium of Instruction 授課語言	Chinese (Putonghua) 中文 (普通話)
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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