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| Course Title | : HISTORY OF SCIENCE AND TECHNOLOGY IN CHINA |
| Course Code | : HST2354 |
| No. of Credits/Term | : 3 |
| Mode of Tuition | : Sectional approach |
| Class Contact Hours | : 3 hours per week |
| Category in Major Prog. | : Elective |
| Prerequisite(s) | : None |
| Co-requisite(s) | : None |
| Exclusion(s) | : None |
| Exemption Requirement(s) | : N/A |

Brief Course Description

This course demonstrates China's long heritage of science and technology in its amazing variety and achievement.

Aims

A broad survey of the development of science and technology in China from antiquity to the present day, this course will focus on conceptual ideas, major achievements, and historical events, as well as representative scientists/engineers and their writings.

Learning Outcomes

Students will be able:

1. to understand the development of science and technology in imperial China;
2. to extend the horizon of Chinese history by exploring the contribution science and technology made to the building of traditional Chinese society;
3. to collect and assess technical source materials to be used in historical research;
4. to conduct historical research under reasonable guidance

Indicative Content

- I. History of scientific thought in China
- II. Links between scientific theories and practical application
- III. Mathematics and the sciences of the heavens and the earth
- IV. Taoist search for immortality and the development of chemistry, metallurgy, and herbal medicine
- V. Paper making, printing, and their westward introduction
- VI. Gunpowder and military science/technology
- VII. Agriculture and the development in science and technology
- VIII. Navigation and navigational technology
- IX. Role played by the Jesuits and other missionaries in the introduction of Western science and technology
- X. Self-strengthening Movement of the late-Qing period and the start of modernization in science and technology

Teaching Method

This course is taught partly as lectures, partly as a seminar with assigned readings and discussions.

Measurement of Learning Outcomes

- a) Class Discussion: to assess students' analytical skill, communication skill, and their understanding of assigned readings. (LOs 1, 2, 3)
- b) Book Review: to evaluate students' ability in critically reviewing the content, style, and merit of literatures on science and technology in ancient China. (LOs 1, 3, 4)
- c) Term Paper: to assess students' writing skill, analytical skill, and the ability to use primary and secondary source materials. (LOs 1, 2, 3, 4)

Assessment

Continuous Assessment: 100%

Class Discussion: 40%

Book Review: 20%

Term Paper: 40%

Required Readings

Selected Readings from the following:

Bodde, Derk, *Chinese Thought, Society, and Science*, Honolulu: University of Hawaii Press, 1991.

Institute of History of Natural Sciences, Chinese Academy of Sciences, *Ancient China's Technology and Science*, Beijing: Foreign Language Press, 1983.

Needham, Joseph (often with collaborators), *Science and Civilization in China*, Cambridge: Cambridge University Press, 1954-, in multi-volumes and multi-parts.
_____, *Clerks and Craftsmen in China and the West*, Cambridge: Cambridge University Press, 1970.

Scuttmeier, Richard P., *Science, Technology and China's Drive for Modernization*, Stanford: Hoover Institution Press, 1980.

Vohra, Ranbir, *China's Path to Modernization: A Historical Review from 1800 to the Present*, Englewood Cliffs, N.J.: Prentice-Hall, 1987.

山田慶兒編，《中國古代科學史論》（京都：京都大學人文科學研究所，1989年）。

中國航海學會，《中國航海史》（北京：人民出版社，1988-1989年），三冊。

田中淡編，《中國古代科學史論續篇》（京都：京都大學人文科學研究所，1991年）。

何丙郁、何冠彪，《中國科技史概論》（香港：中華書局，1983年）。

李光璧、錢君曄編，《中國科學技術發明和科學技術人物論集》（北京：三聯書店，1955年）。

杜石然等，《中國科學技術史稿》（北京：科學出版社，1982年），二冊。

楊翠華、黃一農編，《近代中國科技史論集》（台北、新竹：中央研究院近代史研究所、清華大學歷史研究所，1991年）。

藪內清編，《中國中古科學技術史研究》（京都：朋友書店，1998年）。

藪內清編，《宋元時代中國科學技術史》（京都：朋友書店，1997年）。

Supplementary Readings

Buck, Peter, *American Science and Modern China 1876-1936*, Cambridge: Cambridge University Press, 1980.

Chen, Cheng-yik, *Early Chinese Work in Natural Science: A Re-examination of the Physics of Motion, Acoustics, Astronomy and Scientific Thoughts*, Hong Kong:

- Hong Kong University Press, 1996.
- Fan, Dainian and Cohen, Robert S., eds., *Chinese Studies in the History and Philosophy of Science and Technology*, Dordrecht: Kluwer Academic Publishers, 1996.
- Ho, Peng Yoke, *The Swinging Pendulum: Science in East and West, with Special Reference to China*, Hong Kong: Centre for Asian Studies, University of Hong Kong, and School of Modern Asian Studies, Griffith University, 1982.
- Leibo, Steven A., *Transferring Technology to China: Prosper Giquel and the Self-Strengthening Movement*, Berkeley: Institute of East Asian Studies, University of California, Berkeley, 1985.
- Nakayama, Shigeru, *Academic and Scientific Traditions in China, Japan, and the West*, Tokyo: University of Tokyo Press, 1984.
- Nakayama, Shigeru and Sivin, Nathan, *Chinese Science: Explorations of an Ancient Tradition*, Cambridge, Mass.: MIT Press, 1973.
- Needham, Joseph, *Science in Traditional China: A Comparative Prospective*, Hong Kong: The Chinese University Press, 1981.
- Pusey, James Reeve, *Darwinism and Liang Ch'i-ch'ao: China and Charles Darwin*, Hong Kong: Hong Kong University Press, 1983.
- Sun, E-tu Zen and Sun Shiou-chuan, *T'ien-kung K'ai-wu: Chinese Technology in the Seventeenth Century*, University Park: The Pennsylvania State University Press, 1966.
- Xu, Liangying and Fan, Dainian, *Science and Socialist Construction in China*, New York: E. Sharpe, 1982.
- 中國科學院自然科學史研究所編，《中國古代科技成就》（北京：中國青年出版社，1996年）。
- 朱亞宗，《中國科技批評史》（長沙：國防科技大學出版社，1995年）。
- 何丙郁等，《中國科技史論集》（台北：聯經出版事業公司，1995年）。
- 宋正海、孫關龍編，《中國傳統文化與現代科學技術》（杭州：浙江教育出版社，1999年）。
- 李國豪、張孟聞等，《中國科技史探索》（香港：中華書局，1986年）。
- 杜石然，《洋務運動與近代中國科技》（沈陽：遼寧教育出版社，1991年）。
- 曾雄生等，《中國科技史》（台北：文津出版社，1988年）。
- 華覺明編，《中國科技典籍研究》（鄭州：大象出版社，1998年）。
- 董英哲，《中國科學思想史》（西安：陝西人民出版社，1990年）。
- 劉青泉，《科技史與當代科技》（南昌：江西人民出版社，1999年）。

Important Notes:

- (1) Students are expected to spend a total of 9 hours (i.e. 3 hours of class contact and 6 hours of personal study) per week to achieve the course learning outcomes.
- (2) Students shall be aware of the University regulations about dishonest practice in course work, tests and examinations, and the possible consequences as stipulated in the Regulations Governing University Examinations. In particular, plagiarism, being a kind of dishonest practice, is “the presentation of another person’s work without proper acknowledgement of the source, including exact phrases, or summarised ideas, or even footnotes/citations, whether protected by copyright or not, as the student’s own work”. Students are required to strictly follow university regulations governing academic integrity and honesty.
- (3) Students are required to submit writing assignment(s) using Turnitin.
- (4) To enhance students’ understanding of plagiarism, a mini-course “Online Tutorial on Plagiarism Awareness” is available on <https://pla.ln.edu.hk/>.

