

Chinese History and Philosophy of Science

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Class Time & Location: TBA

Office Hours & Location: TBA

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Course Description

This course offers an introductory survey to Chinese philosophy (for instance, Confucianism, Daoism, and Neo-Confucianism) and its relation to science. We will study primary and secondary sources and address questions such as: Did science develop in China? What about modern science? What conception of science should we use in such discussions? Is there any problem in asking such questions? Is Chinese philosophy beneficial to the development of science? If yes, does it contribute to science in ways that help constitute a scientific tradition that is different from modern science? In what sense are Chinese traditions of philosophy and science similar to or different from the Western traditions?

Learning Objectives

Students who successfully complete this course will be able to (a) read primary and secondary resources; (b) become adept at analyzing and contextualizing arguments, including identifying the conclusion in a text, extracting reasons and evidence offered in support of the conclusion, and critically evaluating the reasons and evidence and their relation to the conclusion; (c) develop a basic understanding of certain issues in Chinese philosophy and history of science.

Requirement and Assessment

It is expected to have read the readings for each class *before the class*. The readings are usually short (around 30 pages per session), but philosophy needs to be read slowly and carefully, so consider putting aside several hours for each week's reading. There are two sets of assignments to help you finish and understand the readings.

1. Weekly Reading Quiz

Beginning with Week 2, there are 12 reading quizzes (one for each week). Each reading quiz is worth 2 points. Your best 10 scores count. Each reading quiz contains two or three multiple-choice questions. It is recommended to read the questions first and keep them in mind when you are going through the readings. These are designed to help you learn to read carefully as well as get the main ideas from the reading materials. You should work on these questions independently. You can discuss the reading materials with other people, but you should not directly discuss the questions and answers of the reading quiz. Reading quizzes are due every Monday at 5:30 pm.

2. Reading Responses

A reading response usually consists of at least one question or objection that you have for the reading materials of each session. To receive full credit for this assignment, your reading response needs to directly engage with the reading materials and shows your understanding and critical thinking of the content. Each reading response is worth 1 point. You can receive up to 18 points. Aside from regular reading responses, there will be three special assignments (instructions will be given later). Reading responses are due every Monday at 5pm.

3. Participation

One of the most valuable things of this course is your participation: asking and answering questions in class as well as participate group discussions. This is a way for you to actively engage with the class, instead of being merely receipts of information. It helps to develop your ability to do critical thinking, to reflect and have a better understanding of the issues on hand, and to receive interactive guidance on your learning. To motivate and encourage your participation, you can earn 1 point for participation in each session, to a maximum of 20 points. If you are unable to attend a class, you can submit a reading reflection of approx. 300 words before the class. It will be graded (that is, credits are not assigned on mere completion).

4. Pop Quiz

Sometime during two separate and unannounced class periods, there will be a pop quiz. Each quiz is worth 3 points and consists of several multiple-choice questions covering basic class materials. To give you a sense of what a pop quiz is like, there will first be a practice-quiz. You will not lose any points if you miss the practice-quiz. You need to be present when the quiz is administered in order to take the quiz and receive any points.

5. Paper

You will submit an essay of approx. 900 – 1100 words, in the style of an academic research paper. I will post prompts for the essay in advance, but you are also free to propose a topic of your own choice. In preparation for your essay, we will have a writing workshop and a tutorial session in class, in which we will discuss more specific expectations and grading criteria.

To guide you through each stage of writing a paper, this assignment consists of 6 parts; for example, you can earn up to 2 points for submitting an outline, up to 3 points for submitting a draft, and up to 12 points for submitting a revision (more details can be found below). Only the final Paper Revision will be assigned a letter grade; other stages will be graded on the Complete/Incomplete basis.

Alternative plan: You can choose in the beginning of the semester to skip all stages other than Paper Draft and Paper Comments. In this case, your Paper Draft will be assigned a letter grade and you can receive up to 22 points for Paper Draft.

6. Final Project

This is an opportunity for you to integrate our work in this class and to apply what you learn to analyze a topic of your own choosing in greater depth. You can choose any topic covered in class. You can present your work in standard formats, such as a paper or a presentation. You can also choose a creative project (including but not limited to, a debate, an interview, podcast episodes, zines, paintings, sculpture, maps, crochet art, music, etc.) supplemented with a short essay explaining the goal and rationale of your project. You may team up with other students in class for the final project. When you present your work in the last two sessions of class, make sure every member of your team gets equal time on stage. A proposal for Final Project is due on April 7. It includes: the format of the project, an outline or summary of your project, and, if you have any team members, their names and how you distribute work among team members.

Note that, given the flexibility for this part of the course, it will be crucial that we communicate about expectations for the project. I invite you to discuss ideas for your project with me and with your peers before you develop a proposal.

Grading breakdown

Reading Quiz	Every Monday	$2 * 10 = 20$
Reading Responses	Every Monday	$1 * 2 * 9 = 18$
Participation	Every Session	$1 * 2 * 10 = 20$
Pop Quiz		$3 * 2 = 6$

Paper		(26)
- Paper Proposal		1
- Paper Outline		2
- Paper Draft		3
- Paper Comments		2 * 2 = 4
- Paper Reflection & Submission		4
- Paper Revision		12
Final Project		(10)
- Proposal for Final Project		2
- Presentation/Submission		8
Total		100

Grading Scale

	A: 93	A-: 90
B+: 87	B: 83	B-: 80
C+: 77	C: 73	C-: 70
D+: 67	D: 63	D-: 60

*Numeric grades like 92.5 will be rounded up to A if and only if students show either excellent participation or significant improvements through the term.

Late Policy

If you experience any health problems or emergency and cannot finish the assignments on time, the class plan and assignments are designed in a way that you would be able to make it up later. If there are any further problems, please contact me so that we can work out a solution. Usually late work is worth 10% fewer points for every day it is late from the time it was due, unless you have a compelling reason for turning it in late (for instance, you were sick, had to work late, or had to take care of someone else). In order to give you full credit for your late work, please contact me as soon as possible.

Class Policy

You are *strongly encouraged* to take notes in the old-fashioned way, on pen and paper. (Research shows that students learn things better this way). Electronic devices are not allowed in class for purposes other than taking notes or using Canvas.

To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use.

Schedule

1. Introduction to the Course

Lisa Raphals, "Science and Chinese Philosophy", *The Stanford Encyclopedia of Philosophy*, <https://plato.stanford.edu/archives/win2020/entries/chinese-phil-science/>; Introduction, Section 4 & 5.

Supplementary Reading: David W. Concepción, "How to Read Philosophy" (p. 358-367).

(The first reading gives a short introduction on what kind of issues are discussed in this class. You can read it either before or after class. If you have not taken any philosophy class before or are not familiar with reading philosophical texts, see the second reading for instruction. You can also go back to it if you experience any difficulty doing the reading assignments.)

2. The Needham Question

Yung Sik Kim, "The 'Why Not' Question of Chinese Science: The Scientific Revolution and Traditional Chinese Science" in *East Asian Science, Technology, and Medicine*; Section 1 & 2.

Needham, "Poverties and Triumphs of the Chinese Scientific Tradition," in *The Grand Titration: Science and Society in East and West*; p. 14-23 & p. 41-54.

Supplementary Reading: William E. Burns, *The Scientific Revolution in Global Perspective*. Oxford University Press, 2015, Chapter 1-2.

3. What is Science?

James Ladyman, *Understanding Philosophy of Science*; Chapter 3, Introduction & 3.1 (p. 62-68).

Karl Popper, *Conjectures and Refutations*; Chapter 1, Section I-III (p. 43-54).

Supplementary Reading: Karl Popper, "Chapter 1: A Survey of Some Fundamental Problems" in *The Logic of Scientific Discovery* (p. 27-48).

Imre Lakatos, “Falsification and the Methodology of Scientific Research Programs”, in *Philosophical Papers* (Volume 1); p. 8-47.

Supplementary Reading: Lakatos, “Falsification and the Methodology of Scientific Research Programs”; p. 1-7 & p. 47-55.

4. What is Chinese Philosophy?

Background and Introduction (Canvas).

Fung Yu-Lan (冯友兰 Feng Youlan), “The Spirit of Chinese Philosophy”, in *A Short History of Chinese Philosophy*.

“Chinese Philosophy in the English-Speaking World: Interview with Bryan Van Norden”: <https://blog.apaonline.org/2016/05/17/chinese-philosophy-in-the-english-speaking-world-interview-with-bryan-van-norden/>. (You can skip the first question.)

Supplementary Reading: Bryan W. Van Norden, *Introduction to Classical Chinese Philosophy*; Chapter 1, p. 9-14.

Supplementary Reading: Van Norden, “Appendix B: the Chinese Language and Writing System”, in *Introduction to Classical Chinese Philosophy*; p. 241-243.

Supplementary Reading: A. C. Graham, *Disputers of the Tao*; Introduction, p. 1-8.

Supplementary Reading: Pierre Hadot, *Philosophy as a Way of Life* (trans. Michael Chase); Chapter 11.

5. Confucianism I: Confucius

Bryan W. Van Norden, *Introduction to Classical Chinese Philosophy*; Chapter 2, p. 19-31.

Edward Slingerland, “Classical Confucianism (I): Confucius and the *Lun-Yü*” in *History of Chinese Philosophy* (Edited by Bo Mou).

Kongzi (Confucius), “The Analects” (Introduction and Translation by Edward Slingerland) in *Readings in Classical Chinese Philosophy* (Edited by Philip J. Ivanhoe and Bryan W. Van Norden).

(Please read as much as you can. If you don't have enough time, you can skip Book 3, 10, 13, 15-16, or 18.)

Supplementary Reading: A. C. Graham, *Disputers of the Tao*; Part I, Chapter 1.

6. Confucianism II: Xunzi

Selections from Kim-chong Chong, “Classical Confucianism (II): Meng Zi and Xun Zi” in *History of Chinese Philosophy* (Edited by Bo Mou); Canvas.

Selections from Bryan W. Van Norden, *Introduction to Classical Chinese Philosophy*; Chapter 10 (Canvas).

Chad Hansen, *A Daoist Theory of Chinese Thought: A Philosophical Interpretation*; Chapter. 9, p. 310-315.

JeeLoo Liu, "Xunzi (Hsiin Tzu)" in *An Introduction to Chinese Philosophy*.

Xunzi, "Treatise on Heaven (Tian Lun)": Translation and Commentary by Edward J. Machle in *Nature and Heaven in the Xunzi: A Study of the Tian Lun*; 2nd Translation by R. Eno.

(You can choose to read either one of these two translations. Both translations include some comments from the translators, which you can skip. The original texts are about 7 pages.)

Supplementary Reading: Joseph Needham, "Confucianism" in *The Shorter Science and Civilisation in China: an Abridgement of Joseph Needham's Original Text*.

Supplementary Reading: JeeLoo Liu, *An Introduction to Chinese Philosophy*; Mencius and Xunzi on Human Nature.

7. Writing Workshop

Pryor, "Guidelines on Writing a Philosophy Paper", <http://www.jimpryor.net/teaching/guidelines/writing.html>.

Supplementary Reading: Pinker, *The Sense of Style: The Thinking Person's Guide to Writing in the 21st Century*.

8. Yijing (the Book of Changes) I

JeeLoo Liu, "Yijing (I Ching): The Cosmological Foundation of Chinese Philosophy" in *An Introduction to Chinese Philosophy*.

(Please read as much as you can. If you don't have enough time, you can skip p. 34-41.)

Selections from Chung-ying Cheng, "The Yi-Jing and Yin-Yang Way of Thinking" in *History of Chinese Philosophy* (Edited by Bo Mou).

Supplementary Reading: Hon, Tze-Ki, "Chinese Philosophy of Change (Yijing)", *The Stanford Encyclopedia of Philosophy*, <https://plato.stanford.edu/archives/sum2019/entries/chinese-change/>; Section 2 & 6.

* Paper Proposal due at 2pm.

8. Yijing (the Book of Changes) II

"The I Ching: Or Book of Changes" (Translation by Richard John Lynn) in *The Classic of Changes: A New Translation of the I Ching as Interpreted by Wang Bi*; "Hexagram 1: Qian", "Hexagram 2: Kun", "Commentary on the Appended Phrases [Xici zhuan], Part One", "Explaining the Trigrams [Shuo gua]".

Reading instruction: Please focus on *Judgment/First Yang* (or *Yin*)/*Second Yang* (or *Yin*) . . . , *Commentary on the Judgments*, and *Commentary on the Images*. *Commentary on the words of the text* further explains the original texts, which is optional for readings. I marked the parts

that are optional readings in the first section of *Qian* as an example (you might need to download the file in order to see the markings instead of viewing the file directly on Canvas.)

Supplementary Reading: Fung Yu-Lan (冯友兰 Feng Youlan), “The Yin-Yang School and Early Chinese Cosmogony”, in *A Short History of Chinese Philosophy*.

* Paper Outline due at 2pm.

Week 9: No Class (Spring Recess)

9. Daoism I: *Daodejing* (1)

Bryan W. Van Norden, Introduction to Classical Chinese Philosophy; Chapter 8, p. 122-135.

Karyn Lai, An Introduction to Chinese Philosophy; Chapter 5, p. 74-80.

Supplementary Reading: JeeLoo Liu, “Laozi (Lao Tzu)” in An Introduction to Chinese Philosophy; Chapter 9.

Supplementary Reading: Fung Yu-Lan (冯友兰 Feng Youlan), “The Second Phase of Taoism: Lao Tzu”, in *A Short History of Chinese Philosophy*; Chapter 9.

* Paper draft due at 2pm.

9. Daoism I: *Daodejing* (2)

Laozi “*The Daodejing*” (Introduction and Translation by Philip J. Ivanhoe) in *Readings in Classical Chinese Philosophy* (Edited by Philip J. Ivanhoe and Bryan W. Van Norden).

(Please read as much as you can. If you don't have enough time, you can focus on Chapter 1-5, 7-9, 23, 25, 32, 34-35, 37-38, 40-49, 51-60, 62-67, 76-78, 81; if you have more time, also read Chapter 14-17, 21-22, 28-30, 68, 70, 74-75, 80.)

* Paper Comments due at 2pm.

10. Writing Group Session

Read and comment on 2 paper drafts of your group members.

* Paper Submission due at 2pm.

11. Daoism II: *Zhuangzi*

JeeLoo Liu, "Zhuangzi (Chuang Tzu)" in *An Introduction to Chinese Philosophy*; 152-154.

"*The Zhuangzi*," (Introduction and Translation by Paul Kjellberg) in *Readings in Classical Chinese Philosophy* (Edited by Philip J. Ivanhoe and Bryan W. Van Norden); CHAPTER FIVE, Chapter 1-3, 6, & 12-13.

Supplementary Reading: Bryan W. Van Norden, *Introduction to Classical Chinese Philosophy*; Chapter 9.

Supplementary Reading: The rest of "The Zhuangzi," (CHAPTER FIVE), especially 12-13.

Supplementary Reading: Lisa Raphals, "Chinese Philosophy and Chinese Medicine", *The Stanford Encyclopedia of Philosophy*, <https://plato.stanford.edu/entries/chinese-phil-medicine/>; Section 1.1, 1.2 & 2.

* Paper Reflection and Revision due at 2pm.

12. Daoism and Science

Nathan Sivin, "Taoism and Science," in *Medicine, Philosophy and Religion in Ancient China: Researches and Reflections*; p. 2-3 & 5-7.

(This reading gives an introduction to Daoism beyond the two philosophical canons.)

Lisa Raphals, "Daoism and Science", in *Dao Companion to Daoist Philosophy* (Edited by Xiaogan Liu), p. 539-549.

Supplementary Reading: Nathan Sivin, "On the Word 'Taoist' as a Source of Perplexity, With Special Reference to the Relations of Science and Religion in Traditional China," in *History of Religions*, 17 (3-4): 303-330; p. 316-326.

Supplementary Reading: Joseph Needham, "Taoism" in *The Shorter Science and Civilisation in China: an Abridgement of Joseph Needham's Original Text*.

13. Chinese Astronomy, Cosmography, and Technology

Daniel Patrick Morgan. *A Sphere unto Itself: the Death and Medieval Framing of the History of Chinese Cosmography*. 2016. halshs-01374811; p. 1-4.

Alternative Reading: Joseph Needham, *Science and Civilization in China*, Volume 3, Mathematics and the Sciences of the Heavens and the Earth, Chapter 20 (d) Ancient and medieval cosmological ideas, p. 210-224.

Sivin, "Cosmos and Computation in Early Chinese Mathematical Astronomy," in *T'oung Pao*, Second Series, Vol. 55, Livr. 1/3 (1969); p. 1-4 & 7.

Supplementary Reading: Sivin, "Comparing Greek and Chinese Philosophy and Science," reprinted in Sivin, *Medicine, Philosophy and Religion in Ancient China: Researches and Reflections*, Variorum Collected

Studies Series (Brookfield, Vt.: Ashgate Publishing Company, 1995); also available at <http://ccat.sas.upenn.edu/~nsivin/comp.html>.

14. Neo-Confucianism I

Justin Tiwald, “Song-Ming Confucianism”, *The Stanford Encyclopedia of Philosophy*, <https://plato.stanford.edu/archives/sum2020/entries/song-ming-confucianism/>; Introduction & the first and second paragraphs of Section 1.

Fung Yu-Lan (冯友兰 Feng Youlan), “Neo-Confucianism: the Cosmologists”, in *A Short History of Chinese Philosophy*.

Supplementary Reading: Angle and Tiwald, Neo-Confucianism: A Philosophical Introduction; Chapter 1, “Historical Overview”.

Supplementary Reading: Zhou Dunyi, “Explanation of the Diagram of the Great Ultimate” in *Readings in Later Chinese Philosophy*.

✱ Proposal for Final Project due at 2pm.

14. Neo-Confucianism II

Justin Tiwald, “Song-Ming Confucianism”, *The Stanford Encyclopedia of Philosophy*, <https://plato.stanford.edu/archives/sum2020/entries/song-ming-confucianism/>; Introduction, Section 2.1 & 2.2.

Yung Sik Kim, “Zhu Xi on Nature and Science,” in *Questioning Science in East Asian contexts: Essays on Science, Confucianism, and the Comparative History of Science*; Chapter 1.

Supplementary Reading: Angle and Tiwald, Neo-Confucianism: A Philosophical Introduction; Chapter 2.

Supplementary Reading: Wing-Tsit Chan, “Neo-Confucianism and Chinese Scientific Thought,” in *Philosophy East and West*, Vol. 6, No. 4 (Jan., 1957), p. 309-332.

Supplementary Reading: Zhu Xi, *Collected Commentaries on the Great Learning*, *Collected Commentaries on the Analects*, and *Collected Commentaries on the Mean* in *Readings in Later Chinese Philosophy*.

15. Chinese Philosophy and Science

Fung, Yu-lan, 1922, “Why China Has No Science—An Interpretation of the History and Consequences of Chinese Philosophy,” *International Journal of Ethics*, 32 (3): 237–263.

Supplementary Reading: Raphals, Lisa, “Science and Chinese Philosophy”, *The Stanford Encyclopedia of Philosophy* (Winter 2020 Edition), Edward N. Zalta (ed.), <https://plato.stanford.edu/archives/win2020/entries/chinese-phil-science/>; Section 1-3, 6-7, & Conclusion.

Supplementary Reading: Ronan and Needham, *The Shorter Science and Civilization in China*, Vol. 1 (Cambridge University Press, 1978), Chapters 10.

16. Critiques of the Needham Question

Yung Sik Kim, “The ‘Why Not’ Question of Chinese Science: The Scientific Revolution and Traditional Chinese Science” in *East Asian Science, Technology, and Medicine*; Section 3-5.

Yung Sik Kim, “Natural Knowledge in a Traditional Culture: Problems in the Study of the History of Chinese Science,” in *Minerva* 20 (1982): 83-104; p. 86-88 & 94-97.

Supplementary Reading: The rest of Kim, “Natural Knowledge in a Traditional Culture”.

Supplementary Reading: Hart, “Beyond Science and Civilization: A Post-Needham Critique,” in *East Asian Science, Technology, and Medicine* 16, no. 1 (August 1999): 88–102.

Supplementary Reading: Nathan Sivin, “Why the Scientific Revolution Did Not Take Place in China—Or Didn’t It?” *Chinese Science*, 5: 45–66.

17. Student Presentations

Other Policy Statements

Academic Integrity

Students in this course will be expected to comply with the [University of Pittsburgh’s Policy on Academic Integrity](#). Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. Furthermore, no student may bring any unauthorized materials to an exam, including dictionaries and programmable calculators. To learn more about Academic Integrity, visit the [Academic Integrity Guide](#) for an overview of the topic. For hands-on practice, complete the [Understanding and Avoiding Plagiarism tutorial](#).

Disability Resources and Services

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and [Disability Resources and Services](#) (DRS), 140 William Pitt Union, (412) 648-7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users, as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

Diversity and Inclusion

The University of Pittsburgh does not tolerate any form of discrimination, harassment, or retaliation based on disability, race, color, religion, national origin, ancestry, genetic information, marital status, familial status, sex, age, sexual orientation, veteran status or gender identity or other factors as stated in the University's Title IX policy. The University is committed to taking prompt action to end a hostile environment that interferes with the University's mission. For more information about policies, procedures, and practices, see: <https://www.diversity.pitt.edu/civil-rights-title-ix-compliance/policies-procedures-and-practices>.

I will grade your assignments anonymously. The reason to grade anonymously is to eliminate the possible effects of implicit biases. For an introduction to implicit bias, take Project Implicit's "Implicit Association Test" (<https://implicit.harvard.edu/implicit>) or read the Stanford Encyclopedia of Philosophy's article on Implicit Bias (<https://plato.stanford.edu/entries/implicit-bias/>).

Class Climate Statement

Our course readings and classroom discussions will often focus on mature, difficult, and potentially challenging topics. Course topics might be political and personal. Readings and discussions might trigger strong feelings—anger, discomfort, anxiety, confusion, excitement, humor, and even boredom. Some of us will have emotional responses to the readings; some of us will have emotional responses to our peers' understanding of the readings; all of us should feel responsible for creating a space that is both intellectually rigorous and respectful. Above all, be respectful (even when you strongly disagree) and be mindful of the ways that our identities position us in the classroom. It is essential that we approach this endeavor with our minds open to evidence that may conflict with our presuppositions. Moreover, it is vital that we treat each other's opinions and comments with courtesy even when they diverge and conflict with our own. We must avoid personal attacks and the use of ad hominem arguments to invalidate each other's positions. Instead, we must develop a culture of civil argumentation, wherein all positions have the right to be defended and argued against in intellectually reasoned ways. It is this standard that everyone must accept in order to stay in this class; a standard that applies to all inquiry in the university, but whose observance is especially important in a course whose subject matter is so emotionally charged.

Health Resources and Policy

Your health is a priority. Please take care of yourself by staying hydrated, eating well, exercising, getting enough sleep, and taking time to relax. There are many other wonderful people at Pitt and in our broader Pittsburgh community who can also help with specific aspects of your mental and physical health. Some of them are:

Student Health: <https://www.studentaffairs.pitt.edu/shs/>

Counseling: <https://www.studentaffairs.pitt.edu/cc/>

An important part of the college experience is learning how to ask for help. Take the time to learn about all that's available and take advantage of it. Ask for support sooner rather than later – this always helps. If you or anyone you know experiences any academic stress, difficult life events, or difficult feelings like anxiety or depression, we strongly encourage you to seek support. Consider reaching out to a friend, faculty or family member you trust for assistance connecting to the support that can help.

In the midst of this pandemic, it is extremely important that you abide by public health regulations and University of Pittsburgh health standards and guidelines. While in class, at a minimum this means that you must wear a face covering and comply with physical distancing requirements; other requirements may be added by the University during the semester. These rules have been developed to protect the health and safety of all community members.