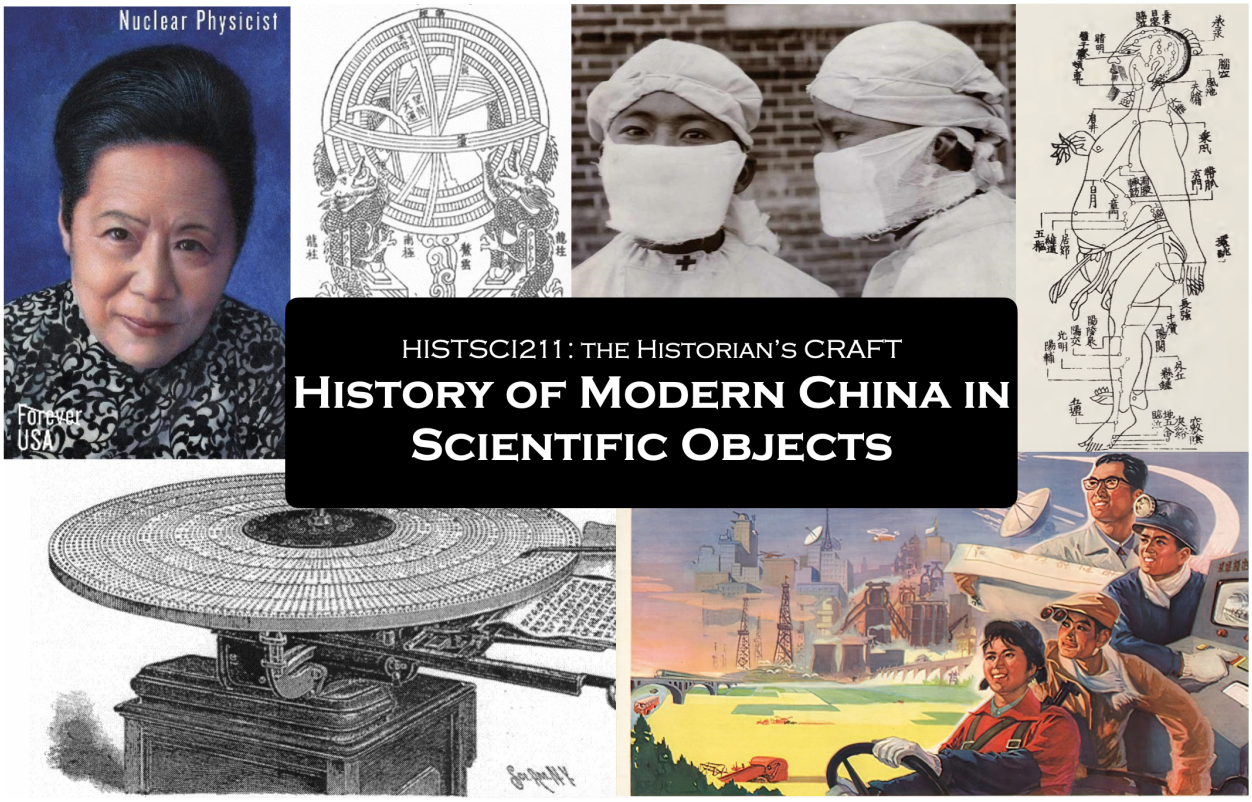

HISTSCI211: THE HISTORIAN'S CRAFT

HISTORY OF MODERN CHINA IN SCIENTIFIC OBJECTS

Instructor: Aijie Shi

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University of Wisconsin—Madison|Fall 2025

Classroom: 5257 Mosse Humanities

Class: Mondays 11:00am—12:55pm

Credits: 3

Course Description

This course introduces students to the history of modern China and its engagement with the wider world by examining significant scientific objects that have shaped historical trajectories and left profound imprints on society, ecosystems, and the conceptualization of non-Eurocentric modernity. By viewing science and technology as more than mere amalgamations of theories, experiments, and mechanics, the course emphasizes historically rooted phenomena such as solar eclipses, herbal medicine, public hygiene, hydroelectricity, atomic bombs and the rise of red engineers. These scientific objects reflect human intellectual exploration of the natural world and are deeply embedded in interpretative frameworks, power dynamics, and everyday lived experiences. Building on critical reading and analysis of scholarly works and primary sources—including scientific reports, government documents, newspaper articles, and oral histories—students will develop a comprehensive understanding of how techno-scientific developments both influence and are shaped by cultural, political, and social contexts in China and within the broader framework of the long twentieth century.

Learning Outcomes

- The course aims to:
    - Help students practice historical inquiry, academic writing, and public presentation skills.
    - Enhance students' ability to ask research questions and assess the credibility of information and arguments.
    - Help students gain valuable skills applicable to careers in history, science, engineering, and as informed global citizens in a polarized information society.
- Students will develop analytical skills to:
    - Explain major breakthroughs in modern science and technology.
    - Understand how these breakthroughs enabled individuals and states to imagine and engineer the natural world and modern society.
- To meet Comm-B requirements, The Historian's Craft course is designed to:
    - Develop skills to ask insightful research questions and formulate historical inquiries.
    - Learn to identify, locate, and evaluate primary and secondary sources using various tools and archives.
    - Assess sources' credibility, perspective, and relevance.
    - Construct well-supported arguments with clear thesis statements and proper evidence citation.
    - Plan and undertake substantial research projects, including writing proposals and contributing to scholarship.
    - Effectively communicate findings through formal and informal presentations to a wider audience.

Course Designations and Attributes

Hist Sci 211
Breadth — Humanities
Level — Elementary
L&S Credit — Counts as LAS credit in L&S
Requisites: This course assumes no prior knowledge of Chinese language, the history of modern China, or the history of science and technology. All who are interested in exploring their intersections are welcome.

Course Materials

No textbook is required for this course. All readings and online exploration material will be made available electronically on Canvas at https://canvas.wisc.edu/courses/478204.

Explanation of Credit Hours

The credit standard for this 3-credit course is met by an expectation of a total of 135 hours of student engagement with the course' learning activities, at least 9 hours per week, which include regularly scheduled instructor/student meeting times, reading, writing, and independent research. As a 2-hour 3-credit seminar, this course mandates one individual meeting per semester between instructor and student.

Email Policy

I will respond to all emails by the end of the following business day at the latest. For emails relating to specific assignments, be sure to email at least one business day in advance to guarantee a timely response.

Grading Rubric and Assessment

(1) Seminar Participation	30%	Letter Grade	Grade Percent
(2) Weekly Online Response*10 [Due Sun before class**]**	20%	**A**	93-100
(3) Mandatory Office Hours Visit [Before 9/29**]**	3%	**AB**	88-92
(4) Discussion Leading [Online Signup Sheet**]**	7%	**B**	83-87
(5) Book Review[2 pages Due Fri. 10/17**]**	10%	**BC**	78-82
(6) Research Project	30%	**C**	70-77
Research Proposal [2 pages due by 10/24**]**	3%	**D**	60-69
Annotated Bibliography [Due by 10/31**]**	3%		
Outline[Due by 11/7**]**	4%		
First draft [8-10 pages due by 11/21**]**	5%		
Research Presentation [In class**]**	5%		
Final Paper [10 pages due by 12/14**]**	10%		

Students in History of Science 211 are expected to come to class with copies of the relevant texts, ready to discuss them for the day. Active participation in seminar-style conversation is an integral component of the learning in this course. For Seminar Participation Grading Rubric: See **Appendix I**.

To meet the oral communication objectives of this course, students will deliver **two brief presentations.** The first involves leading a class discussion on an assigned reading, supported by a one-page handout and discussion questions. The second requires presenting their final research paper in a ~15-minute speech during the last class session. The presentation grading rubrics will be distributed in class. I have attached a few general guidelines (**Appendix II**) to help you think about the readings.

Students will submit 10 out of 15 **weekly reading responses** prior to each class session, along with an 800-word **Book Review** serving as the Midterm Report. Each weekly response includes two components: a **response** to a prompt question, and the formulation of a **discussion question** for class. For the research component of the course, students will produce a final paper of 10 pages based on independent primary and secondary source research. With instructor approval and assistance, students will select a scientific object to problematize and analyze. For General Writing Grading Rubric: See **Appendix III**.

Late Paper Policy: Assignments that are late, for whatever reason, will be docked 5 points (on a scale of 100) per day unless I have granted prior approval. This applies to all assignments, including the take-home exams. Assignments a week or more late will not be accepted unless there are extraordinary circumstances AND you have talked with me. Late drafts will be accepted only with my prior approval. In general, a late draft will lead to a point penalty on the final grade. If you do not turn in a draft, your final paper will be lowered by a minimum of 10 points.

Academic Integrity and Artificial Intelligence Programs

Prior to handing in your first assignment you must read and master the Writing Center's help page on how to avoid plagiarism (https://writing.wisc.edu/handbook/assignments/quotingsources/). We will also discuss the issues of academic writing in class.

Artificial intelligence programs are rapidly becoming important tools that everyone should learn to use. AI can certainly be helpful in the writing process. But you also need to learn how to analyze problems and write sophisticated essays on your own, just as you should be able to navigate on a road trip without using GPS, Google Maps, or other satellite-based systems. Learning how to think about a problem, create an argument, marshal facts in support of your argument, and write persuasively, are critical life skills that you will not develop if you are over reliant on AI. So in this class, you may only use AI for two things: Generating ideas when you are stuck, and correcting your writing, including grammar, spelling, and style. But AI cannot write your whole paper, and in fact, AI history papers are usually pretty bad because AI is not yet good at dealing with detailed sources that require citation and seamless blending into complex arguments. Because of this, in grading, your instructor will be putting much more weight on things that AI is not good at. In addition, **on every writing assignment, you must state whether you used AI and describe how you used it. Do this below your name and date.** For example: **"Fred Flintstone, March 21, 2025, AI usage: I used ChatGPT for grammar, spelling, and stylistic editing after drafting my essay."**

Additional Resources

- The History Lab
  - Assistance from History Department grad students in improving your history papers
  - https://history.wisc.edu/thehistorylab.htm

- The Writing Center
  - Workshops, writers' groups, and one-on-one assistance to improve writing
  - https://writing.wisc.edu/

- McBurney Resource Center
  - Help with necessary accommodations in testing, classroom, etc.
  - https://mcburney.wisc.edu/

Schedule

Week 1|Sep 8 Scientific Objects and the Needham Question
Reading:
- Daston, Lorraine. "The Coming into Being of Scientific Objects." In Biographies of Scientific Objects. University of Chicago Press, 2000, 1-14.
- Needham, Joseph. "Science and Society in East and West." *Science and Civilisation in China*. Vol. 7. Part II. Cambridge university press, 2004, 1-23.

In Class Exploration: Table of Contents of *Science and Civilization in China*.
Due: Schedule an office hour visit in the first three weeks to discuss your research topic(s).

Week 2|Sep 15 Jesuit Science and Solar Eclipse
Reading:
- Nakayama, Shigeru. "Characteristics of Chinese Astrology." *Isis* 57, no. 4 (1966): 442–54.
- Elman, Benjamin A. *On Their Own Terms: Science in China, 1550-1900*. Harvard University Press, 2005, 83-100.

In Class Exploration: How to ask a historical research question about solar eclipse? Three prospects and their evaluation.
Due: Schedule an office hour visit in the first three weeks to discuss your research topic(s).

Week 3|Sep 22 Knowledge Classification Regimes
Reading:
- Kuriyama, Shigehisa. "The Birth of the Pulse." *The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine.* Zone Books, 2011, 23-41.
- Bray, Francesca. "Essence and Utility The Classification of Crop Plants in China." *East Asian Science, Technology, and Medicine* 9, no. 1 (1989): 1–13.

In Class Exploration: Compare and contrast two versions of *Bencao gangmu.*
Due: Schedule an office hour visit in the first three weeks to discuss your research topic(s).

Week 4|Sep 29 Craftsmanship and Invention
Reading:
- Edgerton, David. "From Innovation to Use: Ten Eclectic Theses on the Historiography of Technology." *History and Technology* 16, no. 2 (1999): 111–36.
- Song, Yingxing. "Translator's Preface," "Author's Preface to the 1637 Edition," and "Weapon," in *Chinese Technology in the Seventeenth Century: T'ien-Kung K'ai-Wu*. Translated by E.-tu Zen Sun and Shiou-chuan Sun. Dover Publications, 1997 [1637], v-xii and 261-277.

In Class Exploration: Working on primary sources "Chinese Inventions" and "Transmission of certain techniques from China to the West."
Due: A Book Review List.

Week 5|Oct 6 Self-Strengthening Pains and Gains
Reading:

- Yue, Meng. "Hybrid Science versus Modernity: The Practice of the Jiangnan Arsenal, 1864-1897." *East Asian Science, Technology, and Medicine* 16, no. 1 (1999): 13–52.
- Harrison, Henrietta. "The Confucian Scholar." in *The Man Awakened from Dreams: One Man's Life in a North China Village, 1857-1942*. Stanford University Press, 2005, 21-50.

In Class Exploration: Working on primary sources *Science Compendia* Published in China from 1877-1903.
Due: None.

Week 6|Oct 13 Evolution and National Salvation
Reading:

- Schwartz, Benjamin. "Western Wisdom at Its Source: *Evolution and Ethics*." *In Search of Wealth and Power: Yen Fu and the West*. Harvard East Asian Series 16. Belknap Press of Harvard University Press, 2010, 91-112.
- Mullaney, Thomas S. "Incompatible with Modernity." in *The Chinese Typewriter: A History*. Studies of the Weatherhead East Asian Institute, Columbia University. The MIT Press, 2017, 35-74.

In Class Exploration: Working on primary sources *Chinese Students Monthly*; Sun Yat-sen, *The International Development of China.*
Due: Two-page Book Review due on Canvas by **Oct 17** (Friday) 11:59 pm.

Week 7|Oct 20 Medical Mask and Hygienic Modernity
Reading:

- Rogaski, Ruth. "Seen and Unseen: The Urban Landscape and Boundaries of *Weisheng*." in *Hygienic Modernity: Meanings of Health and Disease in Treaty-Port China*. Asia--Local Studies/Global Themes. University of California Press, 2004, 193-224.
- Lei, Sean Hsiang-lin. "The Chinese Medical Revolution and the National Medicine Movement." in *Neither Donkey nor Horse: Medicine in the Struggle over China's Modernity*. Studies of the Weatherhead East Asian Institute, Columbia University. The University of Chicago Press, 2014, 97-120.

In Class Exploration: *History of Medicine in Modern China* database.
Due: Two-page Research Proposal due on Canvas by **Oct 24** (Friday) 11:59 pm.

Week 8|Oct 27 Wartime Sciences
Reading:

- Seow, Victor. "Imperial Extraction." in *Carbon Technocracy: Energy Regimes in Modern East Asia*. Studies of the Weatherhead East Asian Institute, Columbia University. The University of Chicago Press, 2021, 161-207.
- Williams, Peter, and David Wallace. "Experiments in Manchuria," and "The Secret of Secrets." In *Unit 731: Japan's Secret Biological Warfare in World War II.* 1st American ed. Free Press, 1989, 13-50.

In Class Exploration: Working on primary sources *Science Outpost*; *China Handbook* 1937-1943.
Due: Annotated Bibliography due on Canvas by **Oct 31** (Friday) 11:59 pm.

Week 9|Nov 3 Statist Sciences

Reading:

- Lee, Rensselaer W. "Ideology and Technical Innovation in Chinese Industry, 1949-1971." *Asian Survey* 12, no. 8 (1972): 647–61.
- Wang, Zuoyue. "Science and the State in Modern China." *Isis* 98, no. 3 (2007): 558–70.

In Class Exploration: Work on primary sources PRC's *Twelve-year Plan for Science and Technology, 1957-1965*.

Due: Outline due on Canvas by **Nov 7** (Friday) 11:59 pm.

Week 10|Nov 10 Science for the People

Reading:

- Fan, Fa-Ti. "The People's War against Earthquakes: Cultures of Mass Science in Mao's China." In *Cultures without Culturalism*. Duke University Press, 296-323.
- Schmalzer, Sigrid. "On the Appropriate Use of Rose-Colored Glasses: Reflections on Science in Socialist China." *Isis* 98, no. 3 (2007): 571–83.

In Class Exploration: Working on primary sources Barefoot doctor training manual; Diane Li, *Barefoot Doctors* (1975); Workshopping outlines.

Due: None. Work on first draft.

Week 11|Nov 17 The Fourth Modernity

Reading:

- Greenhalgh, Susan. "Science, Modernity, and the Making of China's One-Child Policy." *Population and Development Review* 29, no. 2 (2003): 163–96.
- Simon, Denis Fred. "Technology Transfer and China's Emerging Role in the World Economy." In *Science and Technology in Post-Mao China*, edited by Denis Fred Simon and Merle Goldman. Harvard University Press, 1989, 289-318.

In Class Exploration: *China's Van Goghs*.

Due: First draft due on Canvas by **Nov 21** (Friday) 11:59 pm.

Week 12|Nov 24 Workshopping First Drafts in Class

Week 13|Dec 1 Final Project Presentations I

Week 14|Dec 8 Final Project Presentations II

Final Paper due on Canvas by **December 14, 11:59 pm.**

Appendix I. Seminar Participation Rubric

	10	**8**	**6-7**	**5**	0
DEMEANOR	Arrives on time; no unexcused absence; attentive, respectful and alert during class				Unexcused absence
PREPARATION	-Mastery over readings and lecture content -Has made an attempt to understand the **main arguments** -Come to class with **interpretations and questions** prepared	Has some understanding of the argumentsbut has not thought deeply about them until prompted in class	-Basic grasp of reading -Mostly offers facts or surface-level interpretation	Lack of participation	
PARTICIPATION	-Asks a thought provoking question -Advances the conversation by building on the efforts of your peers -Brings two comments or articles in conversation with each other -Helps clarify a confusing text or claim -Offers to play the devil's advocate	-Asks a question -Participates in small groups discussion -Voluntarily offers an interpretation of an event or reading	Contributes only when called upon but not actively engaged	Rarely (if ever) speaks up in class, or brings up unrelated material	

Appendix II: Approaching Texts

A**s you read:**Decide whether the source is a primary source or a secondary source. In general, a primary source is a text generated at the time of the event or issue or person discussed. A secondary source is a document that analyzes that event, issue, or person from a historical perspective. If the topic of discussion is tuberculosis in the early 19th century, primary sources might include medical literature, newspaper articles, journal entries, short stories, domestic health guides, and personal letters from the early 19th century. Secondary sources might include a historian's account of tuberculosis in the early 19th century that was written in the 20th century. There are cases where the differences are more fuzzy, but start from this rough distinction.

If the source is a primary source:

a) Note the date. What else happened at the same time? Make sure you understand the chronology of the sources for any given topic.

b) What perspective does it illuminate? Was it written by a middle-class woman facing childbirth? Was it written by a physician advising women how to cope with childbirth?

c) What is the author's goal? Is she trying to persuade? Inform? Seduce? Scold?

d) Who is the intended audience for the piece?

e) Look up words and phrases you don't know.

f) Can you identify a take-home message?

If the source is a secondary source:

a) Figure out the author's argument. Every article has a main point. Make sure you know what it is. (Knowing the argument is different than knowing what the article is about).

b) What kind of evidence does the author use? (Prescriptive literature, diary entries, medical journals?) Is the evidence appropriate for the argument?

c) Is the argument persuasive? Has the author proven his or her claim?

d) Keep track of the chronology. In other words, if the author is describing change over time, make sure you understand how, when, and why things change.

e) Look up words and phrases you don't know.

Appendix III. General Writing Rubric

A (93-100) For outstanding papers only. Thesis and argument are clear, thought-provoking, and persuasive; research is thorough, appropriate, and creative; relationships drawn between evidence and ideas are sophisticated, subtle, and/or original. The paper also connects to larger trends addressed by the course. Writing is grammatically correct and succinct. The argument flows well from point to point, without any puffery or wasted words.

AB (88-92) For very good papers that for some reason fall short of the criteria listed above. For example, the argument may be murky in one place; information may be presented that doesn't directly or clearly contribute to the argument; writing style may be awkward here and there, or flawed by one or two consistent (if minor) grammatical errors.

B (83-87) Your basic good grade. The paper may pursue a straightforward but not especially deep or sophisticated argument; it is okay as far as it goes, but it doesn't penetrate the material very far. It may lack enough primary research to make the argument completely persuasive. It may have a flash of brilliance that is unfulfilled, counterbalanced by minor grammatical problems, a weakness in argumentation, and/or a significant misunderstanding of events or chronology.

BC (78-82) The paper shows some of the basics of the ideal paper, but is weakened by a lack of serious think-work, evidence gathering, or writing problems. It may make superficial connections without offering sufficient evidence to make the connections plausible or persuasive, or it may have what is in principle a good argument supported by incorrect facts or chronology. Alternatively, it may provide a fairly solid argument with minor flaws, from which the reader is repeatedly distracted by awkward or ungrammatical prose.

C (70-77) A grade signifying some serious problems in paper design, expository writing, or primary research. It may deliver facts without a recognizable thesis or argument; it may wander away from the point; or it may be a thoughtful attempt so weakened by writing problems (grammar, punctuation, word choice) that it is difficult for the reader to understand a crucial point you are trying to make. Alternatively, it may offer a strong thesis without providing sufficient primary evidence. Also used for papers that do not ask historical questions.

D (60-69) A marginal grade. This grade usually indicates a paper does not meet the requirements of the assignment in two or more ways: the paper does not ask an historical question, lacks an original thesis, and/or relies almost exclusively on secondary sources. There may be some evidence of reading in the secondary literature, but the paper indicates no effort at synthesis or critical engagement. Also used for essays that are just barely coherent.

F (0-59) For unacceptable essays. An essay may be judged unacceptable if it contains plagiarism or results DEEMED to be improperly produced Generative AI; if it fails to meet three of the major requirements for the paper; if it consists primarily of content inappropriate to the themes of the course; or if the writing fails to meet standard college-level requirements of basic communication in Engl