History 3350 **History and Philosophy of Science** Spring 2026

Instructor:

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Offices: LHc274 (Ogden)
Office hours: Tues and Thurs: 11:30 - 11:50 AM; Weds: 5:00 - 5:20 PM
Other office meetings are available by appointment via email.

Texts:

James E. McClellan and Harold Dorn, *Science and Technology in World History: An Introduction* (3rd edition; Johns Hopkins University Press, 2015) ISBN-13: 978-1421417752

Stuart Firestein, *Ignorance: How It Drives Science* (Oxford University Press, 2012) ISBN-13: 978-0199828074

Class Description and Objectives: The evolution and practice of Western science from origins to contemporary ideas. The goal of this course is to encourage the student to think about science from an historical perspective, and to appreciate how science can inform the study of history.

Participation in the class and class discussions are expected.

Grading Policies: Grades will be determined on the following basis:

Quizzes	50%
Oral Book Report Presentation	20%
Essay on Class Learning	20%
Class participation	10%

Grades: A: 90 - 100% B: 80 - 89% C: 70 - 79% D: 60 - 69% E: 0 - 59%
(Grades at the high or low ends of these ranges will earn plus and minus grades.)

Students with Disabilities: Any student requiring accommodations or services due to a disability must contact Services for Students with Disabilities (SSD) in Room 181 of the Student Service Center. SSD can also arrange to provide materials (including this syllabus) in alternative formats if necessary.

Quizzes: There will a quiz every day at the beginning of class. Each quiz will be based on the readings that you were given for that day, what we discussed the previous class, or will be given on the content of the previous class's presentations.

Recording Classes: Video or audio recording of any portion of lectures is only permitted in this class upon my authorization. If you would like to request authorization to record, please contact me. Unauthorized recording is a violation of the Student Code of Conduct, for which a student may be subjected to disciplinary action under PPM 6-22, Student Code. Students who seek to record for purposes of accommodating a disability should contact the Disability Services Office at (801) 626-6413 or dsc@weber.edu. See more info at https://www.weber.edu/disabilityservices.

Cheating Policy: Cheating and deceit are not accepted at Weber State University. *Cheating on an quiz or assignment, or turning in someone else's work as your own, will result in an E for the class*. You may work together on your assignments and papers, but you must turn in your own work. If you quote from a book, article, or web site, you must properly quote and cite your work. **Avoid even the appearance of cheating or plagiarism.**

Cell Phones, Texting, and Laptops: Put your cell phones on vibrate. Try to avoid leaving class to take a call, but an occasional emergency is understandable. There will be NO texting in this class. Laptops or other personal digital tools may be used to take notes or look up material relevant to class discussions. No other uses of laptops will be tolerated.

Learning Outcomes: These are the learning outcomes for this course:

1. Identify the key events which express/define change over time in a broad range of places and regions.
2. Identify how change occurs over time.
3. Explain historical continuity and change.
4. Describe the influence of political ideologies, economic structures, social organization, cultural perceptions, and natural environments on historical events.

Campus Closure: In the event of an extended campus closure, please look at your Weber State email for instructions on how we will continue the class via your student email address and the Campus online course system.

Institutional Policies: Available at https://www.weber.edu/wsuimages/academicaffairs/Forms/DigitalAddendumtoCourseSyllabus.pdf

Oral Book Report: Each student must select a book that falls into one of the following categories:

- the history of science
- the history of medicine
- history of technology
- the philosophy of science or medicine (including ethical issues)

A list of suggested books is available at http://www.swedin.org/. Other books may be used by the student, subject to approval by the instructor. On an assigned date, the student will give a ten minute in-class presentation on their book. No written report is required. No oral book report will go beyond fifteen minutes. Describe the content of the book and explain how it fits within the history and philosophy of science. The purpose of this exercise is to introduce the class to the variety of literature available on the history and philosophy of science.

Oral Book Report Suggestions: These are suggestions on how to prepare your book report.

- Look up some scholarly reviews of the book, as well as reading it, since the reviews can help you place the book in a larger context. Reviews on Amazon or similar sites are usually not the best reviews for these type of books.
- Ask yourself these questions and answer them during the presentation:
  - Who is the author and why are they qualified to write this book?
  - What is the book about and when was it published?
  - Why was this book written?
  - Summerize the story being told or the arguments being made in the book.
  - What is the main point the author is trying to make?
  - What perspective is the author trying to represent in writing this text?
- When reviewing a novel, don't concentrate on talking about characters or plot, concentrate on its relevance to the history of science.

Scoring rubric:

Read book: Gave a clear description of text in its entirety. (40 points)

Synthesis: Understood bigger picture of text, connected small tidbits together and within larger themes. (20 points)

Presentation: Your manner was clear, organized, and prepared. Could answer questions. (35 points)

Personal insight: Made personal connections to book, could see implications of text. (5 points)

Essay on Class Learning:
Objective: Reflect on what you have learned in this class.

A ten-page double-spaced paper reflecting what you learned in this course is required. This paper may concentrate on a theme or an argument, or can cover the whole course, and can also include your own research. Cite your sources if you bring in material other than what was covered in the course. The first draft may be turned in early. I will return a critique of this draft within the following week. The due date for the final draft is on the schedule. Please do not use ChatGPT or similar artificial intelligence products in writing your paper.

Definition of Science:

Science is a method of making observations of the natural world, or conducting experiments within the natural world, with the goal of articulating models or theories that can successfully predict future observations or successfully predict the results of future experiments. Successful predictions increase the credibility of that particular scientific model or scientific theory. This is more than recognizing cause and effect, an articulated model or theory must be created that avoids supernatural explanations. One can evaluate the reputation of different models or theories in science based on the ability of that model or theory to make accurate predictions.

Psychology/Philosophy of Science:

Foundational assumptions that scientists make:

- understanding nature is desirable (as opposed to those who think that science destroys nature in the mystical sense)
- nature is consistent (nature follows laws that can be described both by axioms and mathematically)
- nature is comprehensible (human brain and senses are adequate to understand nature)

All science is tentative by its nature, based on our best current knowledge, and strives to be predictive. All science is provisional.

Stephen Hawking: "We physicists have to believe that the universe makes sense, in order to go on working . . . Hopefully the universe is not merely capricious."

J.B.S. Haldane: "My own suspicion is that the universe is not only queerer than we suppose, but queerer than we can suppose."

Werner Heisenberg: “Not only is the Universe stranger than we think, it is stranger than we can think.”

Albert Einstein: "The most beautiful thing we can experience is the mysterious. It is the source of all true art and all science."

Schedule:

Date	Topic/Readings
January 7	Introduction to class; What is science?; Everyday distances and Astronomical distances
January 14	Readings: McClellan and Dorn, Introduction and chapters 1-3
January 21	Readings: McClellan and Dorn, Chapters 4-7
January 28	Readings: McClellan and Dorn, Chapters 8-10
February 4	Readings: McClellan and Dorn, Chapters 11-12
February 11	Readings: McClellan and Dorn, Chapters 13-14
February 18	Readings: McClellan and Dorn, Chapters 15-16
February 25	Readings: McClellan and Dorn, Chapters 17-18
March 4	Spring break
March 11	Readings: McClellan and Dorn, Chapter 19 Student Presentations #1 & #2
March 18	Readings: McClellan and Dorn, Chapter 20 and Afterword Student Presentations #3 & #4
March 25	Readings: Firestein, Introduction, Chapters 1-2 Student Presentations #5 & #6
April 1	Readings: Firestein, Chapters 3-5 Student Presentations #7 & #8 & #9
April 8	Readings: Firestein, Chapters 6-8 Student Presentations #10 & #11 & #12
April 15	Spare day
April 22	No class and no final exam; **Essay on Class Learning due**