

Making Modern Science (LPS/HIST 60)

Course Description

This is a course on the history of science. It should not surprise you that there has been a lot written on the history of science. To cover all of it in one quarter would be impossible (it would be impossible to cover all of it even within one's life). To narrow our scope we will focus on covering historical figures and ideas in order to illustrate how particular elements of contemporary science came to be accepted as 'scientific'. For example, consider the idea that science involves experimentation. How did that come to be? Was it always that way? Surprisingly no!

The planned course content will consist of two sections. The first section focuses on providing you with a version of the 'canonical' story of the scientific revolution, dating roughly from the 1200s to the 1700s. Most of the historical figures we look at here concern physical phenomena (astronomy, cosmology, motion, etc.). During this section, we will loosely follow the historical narrative presented in Peter Dear's *Revolutionizing the Sciences: European Knowledge in Transition, 1500-1700* (3rd Ed.). In the second section, we will shift to the life sciences, focusing on the figure of Darwin and his work.

If time permits (and it likely will), we will then cover material focused on more recent developments in the more recent centuries. The selection of these topics will depend on class input and interest.

Grade Breakdown

Attendance: 9%

Quizzes: 25%

Writing Assignments: 25%

Midterm: 20%

Final Exam: 20%

Miscellaneous: 1% (+2% Bonus)

Information About the Assignments

- **Attendance:** Attendance for all 8 discussion section sections will be taken (there will be no discussion section week 1 and week 6). Attending all the discussion sections will be worth 9% of your grade. Accommodations can be made if you are ill or dealing with an emergency; please contact the TA as soon as possible in such a situation.

- **Quizzes:** In weeks 2, 3, 4, 5, 7, 9 the last twenty minutes of discussion section will involve taking a quiz regarding the previous week's course material (e.g., discussion sections in week two will be on week one material). Each quiz contributes the same amount to your final grade. Quizzable course material includes both lecture material and material from the readings. Quizzes must be taken in the assigned room and at the time of the discussion section; taking the quiz outside where the discussion section room is held will result in no points being awarded (accommodation will be made for students who have DSC accommodation). NOTE: If for whatever reason you are attending the discussion section you are NOT registered for, you must tell either the instructor or the TA ahead of time. Otherwise, you will not be able to access the quiz during the relevant time.
- **Writing Assignments:** There will be three writing assignments for the quarter. Two of the writing assignments will be done during discussion section (each of these writing assignments will be worth 10%). Like the quizzes, these must be written during discussion section in the registered room at the registered time (accommodations will be made for students who have DSC accommodations). One of the writing assignments will be completed at your own time outside discussion section (this writing assignment will be worth 5%).
- **Midterm/Final:** There will be a midterm and a final exam for this course. The content on the final will be cumulative but focus on content from the latter half of the course.
- **Miscellaneous:** In the first week of class, there will be quiz on the content of the syllabus. This will be worth 1% of your grade. There will also be a midterm and final evaluation which will be assigned to you during this course. Each evaluation will be worth 1% of *bonus* credit (you cannot exceed a grade of 100%).

Information About the Readings:

The readings are listed on the course schedule for each class. Each reading will be accompanied by a couple notes which contain information about what sections/page numbers/themes/ideas are examinable/quizzable. It is important to note that if some material is not covered in lecture but is specified in the reading notes, it is still examinable/quizzable.

It is recommended that you complete the readings before the specified date as they will aid in providing broader context for content that is discussed in lecture. Regardless of whether or not you complete them before the lecture date, you will want to have completed the week's specified readings before the next week's quizzes since the quiz will be partially based on content in the readings.

Each week also has an extensive list of extra readings. These are, as suggested by their name, extra *optional* readings. They are a good place to get started if you are personally interested in digging deeper into a topic.

Course Schedule (subject to change):

Notes:

- There are no discussion sections in week one.
- *RS* stands for *Revolutionizing the Sciences* by Peter Dear

Week #	Class (Topics)	Readings and Assignment Dates
One	<i>T: Introduction</i>	
	<i>Th: History and Historiography of Science</i>	Syllabus Quiz DUE <i>Chang, H. "Who Cares About the History of Science?"</i>
Two	<i>T: Aristotle in the Universities</i>	<i>Introduction and Chapter One of RS</i>
	<i>Th: From Ptolemy to Copernicus</i>	<i>Chapter Two of RS</i>
Three	<i>T: Galileo Galilei: Religion and Science</i>	<i>Chapter Twelve "The Crime and Punishment of Galileo Galilei" of Science and Technology in World History: An Introduction by James E. McClellan III and Harold Dorn.</i>
	<i>Th: Francis Bacon: Political Natural Philosophy</i>	<i>Chapter Three of RS</i>

Four *T: Societies and Experimental Philosophy No Reading*

Th: Descartes' Mechanical World

Chapter Five of RS

Writing Assignment One

Five *T: The Newtonian Revolution*

Chapter Thirteen "God said, 'Let Newton be!'" of Science and Technology in World History: An Introduction by James E. McClellan III and Harold Dorn.

Th: Catch-Up and Review

Six *T: Midterm*

Midterm Evaluation DUE

Midterm Exam in Class

Th: The Darwinian Revolution

Chapter 6 "The Darwinian Revolution" from Bowler & Morus *Making Modern Science* (2020)

Seven *T: The Darwinian Revolution*

Introduction and Chapter 5, 6 "The Oxford Debate" of Ian Hesketh's *Of Apes and Ancestors: Evolution, Christianity, and the Oxford Debate*.

	<i>Th: The Darwinian Revolution</i>	Daniel Garber, "Why the Scientific Revolution was not a Scientific Revolution, and Why it Matters" in <i>Kuhn's Structure of Scientific Revolutions at Fifty: Reflections on a Science Classic</i> , Richards & Daston (eds.)
Eight	<i>T: The History of Eugenics</i>	Chapter One "What is Eugenics? Why Does it Matter?" <i>Controlling Human Heredity: 1865 to the Present</i> (1995) by Diane B. Paul.
		Writing Assignment Two in Discussion
	<i>Th: Psychiatry and Making Mental Categories</i>	"Contested Boundaries: psychiatry, disease, and diagnosis" (2006) Charles E. Rosenberg
		Writing Assignment Two in Discussion
Nine	<i>T: Animal Models in Biomedical Research</i>	Chapter Three "A History of Animal Models" <i>Model Systems in Biology: History, Philosophy, and Practical Concerns</i> (2022) by Georg Striedter.
	<i>Th: Big Science</i>	"Impact of Large-Scale Science on the United States" (1961) <i>Science</i> by Alvin M. Weinberg
Ten	<i>T: Misinformation and Industrial Science</i>	Chapter One, "Doubt is our Product" (2010) of <i>Merchants of Doubt</i> by Naomi Oreskes & Erik M. Conway
	<i>Th: Big-Picture Wrap Up and Review</i>	Writing Assignment Three

Finals Week

Disclaimer on Course Content:

This course may broach potentially sensitive topics related to, among others, race, gender, and religion. As such, it is important to keep in mind that some may have especially strong views associated with these topics, and that those views ought to be respected. I expect all discussions in this course, whether in-person or online, to be held in an academically respectable manner. This includes allowing others to fully express themselves (by not interrupting them) and responding respectfully (by addressing the ideas and not attacking the person). If you have nothing nice to say, don't say anything. Students who fail to comply with basic rules of conversational etiquette will face appropriate consequences—which may include reporting to the university, removal from the classroom, and/or failure of the course.

Grading Scheme:

Grades follow the standard scale:

A+ > 96.5%	A 93.5% to 96.49%	A- 90.0% to 93.49%
B+ 86.5% to 89.99%	B 83.5% to 86.49%	B- 80.0% to 83.49%
C+ 76.5% to 79.99%	C 73.5% to 76.49%	C- 70.0% to 73.49%
D+ 66.5% to 69.99%	D 63.5% to 66.49%	D- 60.0% to 63.49%
F < 60.0%		

Policy on Late Submissions:

Because most of the assignments for this course will be completed in real time under supervision of either the Instructor or the TA, accomodating late submissions may be difficult. If notified ahead of time for a good reason *or* facing an emergency, accomodations can be made for taking an assignment (either writing the assignment at some other specified time or moving the points for that assignment to something else).

Policy on Academic Dishonesty:

All work that you produce and submit in this course must be your own. Cheating and plagiarism, as defined [here](#) by UCI, will not be tolerated. Violations of academic integrity will be reported to the university and may result in failure of the course.

Policy on the Use of AI:

Many of the assignments in this course require critical thinking and synthesis of ideas in writing. Artificial intelligence (AI) platforms such as ZotGPT could easily be used as a “student proxy” for this work. Yet it is critical for you to develop core research and writing skills **first** before adding AI and other tools to your research toolbox. The danger in letting an AI platform undertake your synthesis and writing is that you will not develop these important skills. Additionally, AI bots are famous for making things up. It may be hard for you to know if the information is correct. Therefore, the course policy is to avoid using AI at all for your assignments.

Final Note:

The teaching team is committed to your academic success. We understand that many students juggle additional commitments. Keeping lines of open honest communication is the best way to work with us. If you are worried about falling behind then please contact either the instructor or TA as soon as possible.

Links to Journals for History of Science, Technology, Medicine, Philosophy of Science

- [Annals of Science](#)
- [British Journal for the History of Science](#)
- [Centaurus](#)
- [Historical Studies in the Natural Sciences](#)
- [History and Philosophy of the Life Sciences](#)
- [Journal of the History of the Behavioral Sciences](#)
- [Journal of the History of Biology](#)
- [History of the Human Sciences](#)
- [History of Science](#)
- [Isis](#)
- [Osiris](#)
- [HOPOS](#)
- [Perspectives on Science](#)
- [Studies in History and Philosophy of Science](#)