LPS/HIST 60:
Making Modern Science

Instructor: Helen Meskhidze
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Lectures: Tu/Th 1:00- 3:50
Office hours:
Zoom link:

TAs:
TA Office Hours:

What's this course about?

This course focuses on major historical developments and current controversies in modern science, specifically **environmental science, computer science, cosmology, and medicine**. Through case studies in these subfields of science, we will discuss the origins and development of these subfields, significant historical figures, practices and reasoning strategies viewed as representative of "the scientific method," and the relationship between science and values.

After successful completion of this course, students will be able to:

1. Evaluate and defend theses regarding the nature and status of science with historical evidence.

2. Analyze and explain primary literature from the history of science. In particular, be able to identify themes from secondary literature in primary sources.

3. Critically reflect on the societal and moral values that underlie both historical and contemporary institutionalized scientific knowledge

This course fulfills the following general education requirements:

II: Science and Technology: Understanding the nature of scientific inquiry and the operation of the biological, physical, and technological world is essential for making personal and public policy decisions in a technological society.

IV: Arts and Humanities: Study of the Arts and Humanities: expands the student's sense of diverse forms of cultural expression, past and present. Students develop their critical capacity as they discover how meaning is created and experience variously interpreted.

It can also be used as one lower-division course requirement for the History Major and Minor and one course requirement for the History and Philosophy of Science Minor.

What do I need to succeed?

Required text:

- *Making Modern Science: A Historical Survey (2nd edition)* by Bowler and Morus

Supplemental materials will either be posted on our Canvas course page or relevant links will be provided.

What's the structure of this course?

The content of this course will be structured into 4 modules with one module for each of the 4 subfields of science we consider. Here's what to expect:

- Meetings:

  We will not meet Tuesdays. Instead, I will be posting asynchronous lectures based on that week's assigned chapter from the textbook. These lectures will be posted Sundays.

  We will meet Thursdays on Zoom. We'll use the first 30 minutes to work with a partner on the chapter summary. I'll lecture for the next 45 minutes and take questions for 15 minutes. We'll then spend 1 hr in small group discussions. Finally, we'll come back together and I will discuss the prompt for the short essay for that week. See below if you can't attend synchronously. Discussion section time will be used for TA office hours.

- Readings:

  Readings for Tuesdays will be assigned from your textbook and reading guides will be provided for each chapter.

  Material for classes on Thursdays will be a mixture of primary sources and popular science articles describing contemporary issues in the subfields we will be studying.

Grades

- **20%** - Reading guides from each chapter (6 total; graded for completion; lowest dropped)
- **10% -** 4 concise chapter summaries
- **10% -** Perusall annotations of supplementary texts (lowest 3 dropped)
- **30% -** End-of-module essays (4 total; lowest score will be dropped)
- **30%** - Final group project

- Assignments:

  Weekly: Reading guides for the textbook chapters will be due Tuesday at 5 pm and will be graded for completion. Some of the questions on the guides will be comprehension based while others will ask you to synthesize and analyze.

  Each week (starting in week 2), a chapter summary of <50 words will also be required, due Thursday by 5pm, submitted through Canvas, and graded for accuracy. You will work on these with a partner during the first 30 minutes of class Thursdays; you may choose your partner.

  Materials for class Thursdays will be posted on Perusall and you will be required to annotate them by 1 pm Thursdays (graded for completion; minimum 2 annotations/source).

  At the end of each module: You will be asked to write a short essay in response to a prompt about the material covered in that unit (500-750 words). These will be due Sundays at 5 pm. The prompts will be given during class Thursdays and will be closely related to the questions at the end of each week's reading guide.

  At the end of the course: You will work with your partner (the same partner you write the chapter summaries with) to write a blog style essay (~750 words) about a subfield of science we did not discuss in the course but is covered in your textbook. In the post, you'll need to summarize and analyze the chapter, discuss at least one related primary source, and provide a contemporary issue in that subfield to which the chapter relates.

Late work, regrades, etc.

Reading guides, chapter summaries, and end-of-module essays will be accepted up to 24 hours late without penalty. You don't need to contact us as long as you're submitting within 24 hrs.

However, if you need a further extension for chapter summaries and end-of-module essays, please contact me within 24 hrs of the due date. Otherwise, assignments more than 24 hours late will be deducted 5% for each additional day they are late. Regrades will only be considered for end-of-module essays. For a regrade, you must submit a half-page explanation within 72 hrs of receiving the grade.

If you're unable to attend the synchronous sessions Thursdays, you will need to watch the Zoom recordings and we will coordinate with your classmates to set up a time and still have the 30 minutes of writing the chapter summary together and the 1 hr small group discussion.

Office hours

Your TAs and I will hold office hours over Zoom at the times designated at the top of the syllabus. I'd strongly encourage you to drop by our office hours, whether individually or even as a pair/group!

Here are some reasons you might want to come to office hours:

- Receive one-on-one help from me or your TAs for confusing or difficult topics in the course
- Receive one-on-one help from me or your TAs for an upcoming assignment
- Clarify some aspect of an assignment with me or your TAs
- Confidentially speak to your TA about a grade you received
- Confidentially speak to me about your progress or performance in the course
- Receive mentorship from me or your TAs (career ideas, paths to grad school, other LPS courses being offered, etc.)

(Optional) Course Discord

We have a Discord server for the course— you can enroll by clicking here. Discord is a platform where you can voice/text chat with others. My hope is that it can give us some sense of community even while we're all isolated. Feel free to ask logistical questions, content questions, and/or set up rooms to chat with your peers on Discord. I'll be monitoring it regularly, as will your TAs. All official course information will be communicated through Canvas so you do not need to use Discord if you'd prefer not to.

Course Policies

Academic Integrity: Any violation of academic integrity (e.g., cheating) will result in an F for the course and letters sent to the appropriate deans. This course will follow the **UCI policy** on academic integrity.

Accessibility and Inclusivity: Your well-being and success in this course are important to me! If you have any particular needs, concerns about the structure of the course, or concerns about your ability to succeed in the course, please visit me during office hours or, if necessary, at another arranged time. Every student is entitled to a meaningful and stimulating learning experience. Please contact the Disability Services Center (DSC) to make the necessary arrangements. Finally, if you have a preferred name or pronoun besides that provided by the enrollment office, please let me know.

Schedule

Week 1: Introduction and background historical context

Tuesday (8/3): *MMS* Chapter 1

Thursday (8/5): *MMS* Chapter 2

Week 2: Ecology

Tuesday (8/10): *MMS* Chapter 9

Thursday (8/12):

- Primary: *Silent Spring*, Chapter 2 and part of 3 by Rachel Carson
- Podcast: "Making ecology studies replicable, and a turnaround for the Tasmanian devil" by Sarah Crespi, Cathleen O'Grady

Week 3: Computer Science

Tuesday (8/17): *MMS* Chapter 12

Thursday (8/19):

- Primary: The Lady Automaton by E.E. Kellett
- Video: What the Google Manifesto Got Wrong by Nathan Ensmenger

Week 4: Cosmology

Tuesday (8/24): *MMS* Chapter 13

Thursday (8/26):

- Primary: "The Steady-State Theory of the Expanding Universe" by Hermann Bondi & Thomas Gold
- Popular science article: "The Inflated Debate Over Cosmic Inflation" Amanda Gefter

Week 5: Medicine

Tuesday (8/31): *MMS* Chapter 20

Thursday (9/2):

- Podcast: The Unikely Pioneer Behind mRNA Vaccines, The Daily
- "Scientific Utopia: II. Restructuring Incentives and Practices to Promote Truth Over Publishability" Brian Nosek, Jeffrey Spies, Matt Motyl