

# Magic, Medicine, and Science

(HPS 0515/HIST 0089)

Fall 2018

Wednesdays 6–8:30PM

Cathedral of Learning 144 (English Room)

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Today's scientific theories and methods are the outgrowth of a historical development dating back to antiquity. In this course we trace the emergence of modern science with an emphasis on the diverse strains of thinking that preceded the scientific era and form its backdrop, from Greek and Levantine cosmology and medicine to the magical traditions that blossomed in the Renaissance. The largest share of the course will focus on the years 1500–1700 CE in Europe. We will discuss some celebrated innovators of this period such as Galileo and Newton alongside their lesser-known contemporaries, with the aim to arrive at an understanding of the scientific revolution enriched by historical context.

NOTE: This course satisfies the 'Historical Analysis' general education requirement.

## Readings

All course readings will be made available on Blackboard.

Please note that this is a reading-intensive course. Students will be expected to arrive at class having digested the assigned readings enough that they can contribute to possible discussion and ask informed questions. That said, historical secondaries are often dense with information and early philosophy and scientific primaries are written in dated (though sometimes beautiful) prose. Do not despair! Do your best to grasp the meat of the texts, bring your notes and readings to class, and we will work together in class to clarify and synthesize the material for that week.

NOTE: Readings marked *Skim for class* are meant to be quickly viewed so that you have an idea of their basic content—the topic, the general framework, the style of thinking and writing, etc. We will delve more deeply into these during class, so please make sure you bring them with you.

You are strongly encouraged to consult some of the guides on reading history and philosophy available online, such as...

W. Caleb McDaniel, "How to Read for History" <https://wcm1.web.rice.edu/howtoread.html>

Hugh Wilder, "How to Read Philosophy" [myweb.facstaff.wvu.edu/wasserr/114/how\\_to\\_read.pdf](myweb.facstaff.wvu.edu/wasserr/114/how_to_read.pdf)

Russo, "Reading a philosophical text" [sophia-project.org/uploads/1/3/9/5/13955288/russo\\_reading.pdf](sophia-project.org/uploads/1/3/9/5/13955288/russo_reading.pdf)

## Grading

- **Participation: 10%**
  - ½ point for each reading response submitted *in class* (up to 5 points).
  - Further credit given in ½ point increments based on contributions to class discussion, participation in in-class activities, or attending office hours.
- **Weekly reading responses: 30%**
  - Each week, I will post an assignment on Blackboard consisting of either a small set of short-answer comprehension questions or a prompt for brief (~300 word) personal commentaries/questions in response to the assigned readings. These will receive a grade of 1-3 points.
  - Except for special circumstances, you are required to hand these in in class. Since I will not be taking attendance, they serve as a proxy for your being in class (hence the participation credit).
  - Only ten responses will be graded. You can hand in more if you like and the ten best scores will be counted. If fewer than ten are submitted, the remainder will be given a score of 0.
- **Midterm exam: 30%**
  - This will be a mixture of multiple choice, short answer, and one short essay question meant to test your understanding of the material covered in the first seven weeks of the course. This will take place during the first half of class on **October 17**. We will schedule some time to review before the exam.
- **Final project: 30%**
  - This may be an essay (2500-3000 words), a podcast, a video, a collection of songs, a concept map, a mock historical object/document, a recreated experiment, or a similar kind of creative work that manifests research into a specific topic of your choosing. The goal is for you to investigate the history of a subject matter that you find especially interesting (perhaps related to your major, hobbies, or other non-academic interests) and connect it to a period, figure, or historical narrative that we encounter in the course. Further instructions will be provided after the first segment of the course. The final project will be due along with a brief presentation to your classmates on the final day of class **December 5**.

If you find yourself struggling with the course material or are concerned about your grade, please act sooner than later. Come to office hours and we will work to identify the source of your difficulties and improve your understanding of tricky subjects.

## A note on classroom discussion

Part of each class will involve lectures on further historical background and works of the central figures and periods of concern that week. However, this is not the prime focus of the course. All students are encouraged to ask questions, raise points of concern, and contribute their own knowledge and reflections whenever they can. We will be surveying a wide range of material, much of which I am not an expert in, and I expect there is a great deal we can learn by hearing

what each other thinks and picks up from the readings. Ample space will be given for discussions of this sort, and in-class investigation of primary sources assigned for skimming before class.

It is paramount that everyone maintain a respectful attitude toward one another during these discussions. It may be that certain topics will grip you and generate enthusiasm that can lead to heightened emotions and even intellectual controversy, but this is absolutely no excuse to disparage, dismiss, talk over, or otherwise disrespect your fellow classmates. Any abusive, bigoted, or harassing behavior or language will not be tolerated. Any students who are experiencing behavior that is affecting their ability to concentrate and learn or otherwise have concerns about social dynamics of the class are strongly encouraged to contact me privately.

On a related note, if you suspect that material to be covered at some point in this course will be emotionally challenging for you, I'd be happy to discuss any concerns you have before the subject comes up in class. Likewise, if you ever wish to discuss your personal reactions to course material with the class or with me individually afterwards, I welcome such discussions as an appropriate part of our classwork.

### Writing center

I encourage all of you to take advantage of the Writing Center, located at 317B O'Hara Student Center. For information about the center, visit: [www.writingcenter.pitt.edu](http://www.writingcenter.pitt.edu)  
You can easily make an appointment with a writing consultant online.

### 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.

### Disability services

If you have a disability that requires special testing accommodations or other classroom modifications, you need to notify both the instructor and Disability Resources and Services no later than the second week of the term. You may be asked to provide documentation of your disability to determine the appropriateness of accommodations. To notify Disability Resources and Services, call (412) 648-7890 (Voice or TTD) to schedule an appointment. The Disability Resources and Services office is located in 140 William Pitt Union on the Oakland campus.

### Email communication policy

Each student is issued a University e-mail (username@pitt.edu) upon admittance. This e-mail address may be used by the University for official communication with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. The university provides an e-mail forwarding service that allows students to read their e-mail via other service providers (e.g., Hotmail, AOL, Yahoo). Students that choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding it does not absolve the student from responding to official communications sent to their University e-mail address. To forward e-mail sent to your University account, go to <http://accounts.pitt.edu>, log into your account, click on Edit Forwarding Addresses, and follow the instructions on the page. Be sure to log out of your account when you have finished. (For the full E-mail Communication Policy, please go to [www.bc.pitt.edu/policies/policy/09/09-10-01.html](http://www.bc.pitt.edu/policies/policy/09/09-10-01.html).)

### Copyright notice

Course materials may be protected by copyright. United States copyright law, 17 USC section 101, et seq., in addition to University policy and procedures, prohibit unauthorized duplication or retransmission of course materials. See Library of Congress Copyright Office and the University Copyright Policy.

### Statement on classroom recording

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.

### A note on Title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources at <https://www.titleix.pitt.edu/resources> (Please note that faculty and staff are considered required reporters—this means that if you disclose to me, or another employee of Pitt, that you have been a victim of sexual violence we have the obligation to report the situation. My report does not mean that you are officially reporting the incident – rather, this process is in place so that our schools can make sure you are able to receive the support and resources you need. Additional information may be found at the following website (including confidential sources on and off campus): <https://www.titleix.pitt.edu/resources/university-and-community-resources>

## Course schedule

### **8/29: Introduction**

#### **9/5: Elements of Ancient Medicine and Anatomy**

- Selections from Kuriyama, *The Expressiveness of the Body*
- Selections from Lindberg on Hellenistic Medicine
- Hippocratics, "The Nature of Man"
- **Skim for class:** Selections from Hippocrates on epidemics, climates, and aphorisms
- **Skim for class:** Selections from Galen on respiration and the arteries

#### **9/12: Elements of Ancient Greek Physics and Cosmology**

- Cohen, "The Old Physics"
- Kuhn, "The Ancient Two-Sphere Universe"
- **Skim for class:** Selections from Epicurus, "Letter to Herodotus" and "Letter to Pythocles"
- **Skim for class:** Selections from Aristotle, *On the Heavens*, Books II-IV

#### **9/19: Arabic Science and Medieval Europe**

- Singer, "Early English Magic and Medicine"
- Lindberg, "Science in Islam"
- Selections from Siraisi, *Medieval and Early Renaissance Medicine*, Chapter 1
- **Skim for class:** Selections from Avicenna (Ibn Sina), *The Canon of Medicine*
- **Skim for class:** Selections from Ibn Al-Haytham, *Optics*, Book I

#### **9/26: Early Universities and Renaissance Humanism**

- Lindberg, "The Revival of Learning in the West"
- Dear, "Humanism and Ancient Wisdom: How to Learn Things in the Sixteenth Century"
- **Skim for class:** Selections from Paracelsus on medicine

#### **10/3: Witchcraft, Natural Magic, and Hermeticism**

##### **inc. guest lecture by William Rhodes on witchcraft and magic in English Renaissance literature**

- Webster, *From Paracelsus to Newton*, "Introduction"
- Selections from Clark, *Thinking with Demons*
- **Skim for class:** Selections from Hermes Trismegistus, *Divine Pymander*
- **Skim for class:** Illustrations from the works of Fludd

#### **10/10: Alchemy and Astrology**

- Principe, Selections from *The Secrets of Alchemy*
- Thomas, "Astrology: Its Social and Intellectual Role"
- **Skim for class:** Basil Valentine, *Twelve Keys*
- **Skim for class:** Hermes Trismegistus, *Emerald Tablet*
- **Skim for class:** Selections from Dee, *Sacred Symbol of Oneness (Monas Hieroglyphica)*
- **Skim for class:** Selections from Cardano on astrology

#### **10/17: MIDTERM and the Paduan Medical School**

- Vesalius, Preface to *On the Fabric of the Human Body*
- Selections from Harvey, *On the Motion of the Heart and Blood in Animals*
- **Skim for class:** Selections from Fracastoro, *Syphilis*

**10/24: New Astronomy/Cosmology**

- Copernicus, *On the Revolutions*, Book One
- Dear, “Mathematics Challenges Philosophy: Galileo, Kepler, and Surveyors”
- Selections from Galileo, *The Starry Messenger*

**10/31: New Physics**

- Dear, “Mechanism: Descartes Builds a Universe”
- Selections from Galileo, *On Motion*
- **Skim for class:** Selection from Descartes, *Treatise on Light*
- **Skim for class:** Selections from Boyle, *New Experiments Physico-Mechanical*

**11/7: New Worlds and Utopianism**

- Selections from More, *Utopia*
- Selections from Bacon, *The New Atlantis*
- **Skim for class:** Selections from Wilkins, *Discovery of a New World*

**11/14: European Expansionism and Observations**

- Wolf, “Europe, Prelude to Expansion”
- Daston, “The Empire of Observation”
- **Skim for class:** Selections from Hooke, *Micrographia*
- **Skim for class:** Boyle, Recorded observations from travelers
- **Skim for class:** Samples from the *Philosophical Transactions of the Royal Society*

**11/21: THANKSGIVING BREAK, NO CLASS**

**11/28: Social Contexts and Scientific Spaces**

- Hunter, “Women and Science in the Sixteenth and Seventeenth Centuries”
- Shapin, “The House of Experiment in Seventeenth-Century England”
- Shapin, “The Invisible Technician”
- **Skim for background:** Dear, “Extra-curricular Activities: New Homes for Natural Knowledge”

**12/5: Newton, Final Project Presentations, and Conclusion**

- Cohen and Smith, Introduction to *Cambridge Companion to Newton*
- Newton, *Principia*, Preface and General Scholium