

Syllabus – HPS210: Scientific Revolutions I – September 2017

Course description: This course examines case studies in the history of science from classical antiquity through to the end of the eighteenth century, with an emphasis on the multifaceted process of how scientific knowledge changes over time. The course will address cases in the history of physics, astronomy, chemistry, medicine, and other fields. These case studies will explore both the major historical developments, and the methods that historians of science and other scholars use to understand the past. Weekly lectures will discuss the ideas of prominent and familiar historical figures, such as Plato, Ptolemy, Copernicus, Galileo, Descartes, and Newton, as well as lesser-known figures who fill out our understanding of different historical periods. Lectures and readings will address factors within and beyond science that affect the development of scientific knowledge. The course is designed to be accessible to science students and non-scientists alike.

Course objectives: Upon completing this course, students will be able to:

- explain major changes in the history of science up to 1800
- recognize and describe the ideas of key figures in the history of science
- identify intellectual and social factors that cause scientific knowledge to change over time
- evaluate historians' arguments about key figure and developments in science
- synthesize material from different topics to make arguments about particular subjects and about the history of science in general
- write a cogent essay about the development of pre-modern science

Lectures: NF 003, Tuesday 12:00-2:00 pm

Instructor: Adam Richter, PhD candidate, Institute for the History and Philosophy of Science and Technology (IHPST)

Office hour: VC 307, Tuesday 2:15-3:15 pm, or by appointment

Contact:

I prefer to communicate by email. You can reach me at adam.richter@mail.utoronto.ca. **Please begin the subject line with “HPS210” or I might miss your email.** I will try to respond to your emails within 48 hours, but this is not always possible. If necessary, you can leave a message for me at the IHPST by calling (416) 978-5397 or by coming to the IHPST office at VC316.

TAs: Soroush Marouzi (soroush.marouzi@mail.utoronto.ca) and Andrew Oakes (andrew.oakes@mail.utoronto.ca)

Grade breakdown

In-class test: 15% - **October 10**

Document analysis: 15% - **Due October 26**

Essay: 35% - **Due on December 3**

Final exam: 35% - **Exam period**

Readings:

On most weeks, readings will be taken from **Andrew Ede and Leslie Cormack, *A History of Science in Society*, 3rd ed., vol. 1 (Toronto: University of Toronto Press, 2016) (abbreviated EC)**. Other secondary source readings are noted in the schedule and will be **posted on Blackboard**.

Schedule

Week 1: September 12 – Introduction: How Does Scientific Knowledge Change?

No readings

Week 2: September 19 – Greek Science and Philosophy

Readings: EC 1-22

Week 3: September 26 – Hellenistic and Roman Science / Ptolemaic Astronomy

Readings: EC 22-42

Week 4: October 3 – Medieval Science: The Byzantine and Islamic Empires

Readings: EC 42-49, 55-56, 63-65; David C. Lindberg, *The Beginnings of Western Science*, 158-162

Week 5: October 10 – Medieval Science: the Latin West

TEST AT THE BEGINNING OF CLASS

Readings: EC: 67-84, 86-93

Week 6: October 17 – The Copernican “Revolution”

Readings: EC: 95-106, 119-123

Week 7: October 24 – Who Was Galileo?

Readings: EC: 112-119, 123-128

DOCUMENT ANALYSIS DUE OCTOBER 26

Week 8: October 31 – Anatomy and Medicine / Women in Early Modern Science

Readings: EC: 129-131, 148-150, 162-164; Mary E. Fissel, “Introduction: Women, Health, and Healing in Early Modern Europe,” 1-17

LAST DAY TO DROP THE COURSE WITHOUT PENALTY – NOVEMBER 6

NO CLASS ON NOVEMBER 7 – READING WEEK

Week 9: November 14 – Mechanical and Experimental Philosophies

Readings: EC: 133-139, 146-155, 158-162, 165-166

Week 10: November 21 – Global History of Science: Jesuits / The Atlantic World

Readings: EC: 106-110; Antonio Barrera-Osorio, “Knowledge and Empiricism in the Sixteenth-Century Spanish Atlantic World,” 219-232

Week 11: November 28 – Science and the Occult: Magic, Astrology, and Alchemy

Readings: EC: 50-55, 84-86, 110-112; John Henry, “The Fragmentation of Renaissance Occultism and the Decline of Magic,” 8-14

ESSAY DUE DECEMBER 3

Week 12: December 5 – Newton and Newtonianism

Readings: EC: 139-146, 155-157, 166-167

Assignments

In-class test: This will be a short test held in the first thirty minutes of class, based on the material from the first four weeks. The test will give you a good opportunity to gauge how well you are understanding the material. It will include multiple choice, fill-in-the-blank and short-answer questions.

Document Analysis: This short writing assignment will test your ability to answer key questions about a primary source (a document written by a historical actor at the time, not by a historians) based on a close, critical reading and on knowledge you will have gained during the course. The maximum length will be **750 words**. We will discuss this assignment in greater detail during lectures. You will submit it by uploading via Turnitin (see below).

Essay: This essay, due at the end of the term, will ask you to analyze and synthesize material from the course as a whole. You will have a choice between two or three essay questions. The maximum length will be **1800 words**. We will discuss this assignment in greater detail during lectures. You will submit it by uploading via Turnitin (see below).

Exam: The exam will be scheduled during the exam period. It will cover material from the entire course. It will include multiple choice, fill-in-the-blank, short-answer, and essay questions.

Policy for late work:

The grade on late essays will be reduced by **3% per calendar day, to a maximum of 15%**, with one day considered to have elapsed at 12:01 a.m. at the end of the day when the essay is due. If your essay is more than five days late, I will not accept it at all and your grade on the assignment will be 0. Extensions are possible, but you must ask me by email no later than a week before the due date. If you have an unavoidable conflict that causes you to miss the midterm, we can make alternate arrangements, but please let me know as soon as possible. If you have an unavoidable conflict for the final exam, you must contact the Registrar’s office to make other arrangements. If the reason for rescheduling any tests or due dates is medical, you will need to provide a note signed by a medical professional.

Grading scale:

Your work will be evaluated in accordance with the grading scale provided by the Faculty of Arts and Science, which you can consult here:

<http://www.artsci.utoronto.ca/newstudents/transition/academic/grading>

Academic honesty:

Please note that the university takes breaches of academic honesty very seriously, and that offences can have lasting academic consequences far worse than failing an assignment. Academic dishonesty includes, but is not limited to, plagiarism. All work that you submit must be entirely your own. **Unacknowledged borrowing from any source, published or unpublished, will not be tolerated. Nor will any effort to portray someone else's work as your own.** Academic honesty requires citing sources fully and properly. Chicago Style is preferred in history. You may use a different citation style if you wish, as long as you use it consistently and correctly. If you have any doubts about how to cite correctly, or what constitutes academic dishonesty, visit <http://life.utoronto.ca/get-smarter/academic-honesty/>. If you need clarification on these policies, you can contact me or one of the TAs. Finally, please remember that in the age of the Internet, it is very easy to detect plagiarism, so it is simply not worthwhile.

Turnitin:

Normally, students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.

Electronic devices:

Please turn off your cell phone, or better yet leave it at home. Any use of cell phones in class is disruptive and distracting, so, as a matter of courtesy to me and to your classmates, please do not use them in any capacity (including calls, texts, games, apps) except for emergencies. You may take notes on a laptop or tablet, but please do not browse the Internet, check your email, or engage in social networking during class. We have much to cover in a short time, and electronic distractions will cause you to miss a lot of material.

Special needs and accessibility issues:

If you have any special needs that need to be accommodated, please discuss with me within the first week of class. You may also want to visit Accessibility Services or Test and Exam Services.