

Syllabus
Philosophy 280: Metaphysics, Religion, and Magic in the Scientific Revolution
5 Credit Hours

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Office Hours: M/W 10:30-11:30 and by appointment
Class Meets: M/W 11:30-1:18

Course Description

The seventeenth century saw revolutionary developments in natural science, specifically, in matter theory, mechanics, chemistry, and astronomy. These developments were thoroughly intertwined with magical traditions, religious doctrines and disputes, and, especially, philosophical theories and arguments. This course will examine some of these connections in the works of some of the most influential natural philosophers of the period. Our main goal is a richer understanding of this crucial period in the development of modern science. In addition, as with any philosophy class, we will evaluate the cogency of the arguments and the consistency and plausibility of the views we encounter.

GEC Expected Learning Outcomes

Historical Study

History courses develop students' knowledge of how past events influence today's society and help them understand how humans view themselves.

1. Students acquire a perspective on history and an understanding of the factors that shape human activity.
2. Students display knowledge about the origins and nature of contemporary issues and develop a foundation for future comparative understanding.
3. Students think, speak, and write critically about primary and secondary historical sources by examining diverse interpretations of past events and ideas in their historical contexts.

Application of GEC Expected Learning Outcomes to This Course

In this course, you will gain a perspective on the history of science, and an understanding of some of the factors that have shaped the development of modern science in general, and modern physics in particular. In particular, you will see some of the ways in which science and magic came to be separated – an issue that (in an era of crystal healing, homeopathy, creationism, and so on) continues to have relevance today. You will be required to think, speak, and write critically about the primary-source and secondary-source readings of the course, especially on the later readings from the Leibniz-Clarke correspondence. Critical engagement with these texts will allow you to come to grips with questions such as: Why did Newton and Boyle take alchemy seriously?, and What

really changed during the scientific revolution? You will also develop skills in critical listening, reading, thinking, and writing. In short, you will:

- have direct contact with a major form of human thought – the historical foundations of scientific thought – and develop an informed responsiveness to it and a heightened participation in it
- acquire a perspective on the history of the scientific revolution and an understanding of what forces shaped this period
- develop a capacity to comprehend and evaluate critically the epistemic values of your own world as compared with those of the Early Moderns
- further your understanding of the foundations of human beliefs and the nature of reality
- learn to appreciate and interpret significant writings by great Western philosophers and scientists (Bacon, Boyle, Clark, Descartes, Galileo, Leibniz, Newton)

Required Texts and Other Course Materials

(All texts available from the local branch of Barnes and Noble. Or search online.)

Matthews, Michael R., ed. *The Scientific Background to Modern Philosophy*. Hackett. (An anthology of primary sources.)

Henry, John. *The Scientific Revolution and the Origins of Modern Science*, 2nd ed. Palgrave, 2002. (An historical overview.)

Descartes, René (author). Roger Ariew (editor). *Philosophical Essays and Correspondence*. Hackett.

Leibniz, G.W. and Clarke, Samuel (authors). Roger Ariew (editor). *The Leibniz-Clarke Correspondence*. Hackett.

PDF's of more primary and secondary sources available on Carmen.

Evaluation

Midterm: 30%

- Long-answer questions will ask you to show that you can interpret and analyze the transition from Aristotelian thinking about the natural world to that of Galileo and Bacon. Critical thinking and writing skills will be essential.

Term paper of 2500 words length: 30%

- For your term paper, a list of suggested topics will be provided; but if you're excited to work on something else, consult with me and we will work out an acceptable alternative topic for you. (Don't hesitate to ask!)
- Your term paper will also display your interpretative and analytical skills as you critically engage with primary and secondary sources. In it you will consider different interpretations of some aspect of the scientific revolution and defend a position, either one that is purely historical or one that considers the significance of the scientific revolution from a more contemporary context. Critical reading, thinking, and writing skills will be essential.

Final exam: 30%

- Long-answer questions will ask you to show that you can interpret and analyze Descartes, Boyle, Newton, and the Leibniz/Clark correspondence, with a focus on the historical development of our norms for scientific reasoning and the demarcation of science from non-science. Critical thinking and writing skills will be essential.

Class participation: 10%

- This is an opportunity to demonstrate critical listening and thinking skills, as well as a chance to ask questions and work out interpretative issues.

Grading

- A: 90-100%
- A-: 85-89
- B+: 80-84
- B: 75-79
- B-: 70-74
- C+: 65-69
- C: 60-64
- C-: 55-59
- D+: 50-54
- D: 45-49
- E: 0-44

Scheduling of Exams and Assignments

The midterm will be held 29 October, and the term paper is due on 3 December. There is also a final exam, held on 10 December.

Outline of Topics

Sep.	24	Introduction
	29	Aristotle and Aristotelianism: form and matter
Oct.	01	Aristotle and Aristotelianism: teleology
	06	Astronomy: astrology and Ptolemy
	08	Astronomy: Ptolemy and Copernicus
Oct.	13	Bacon: taming nature
	15	Bacon: the new experimentalism
	20	Galileo: defending Copernicus
	22	Galileo: the new science of motion
	27	Galileo: divesting matter of sensible qualities
	29	Midterm Exam
Nov.	03	Descartes: matter as mere extension; laws of motion
	05	Descartes: occasionalism
	10	Descartes: occasionalism
	12	Boyle: empiricism, alchemy, and chemistry
	17	Boyle: primary affectations and sensible qualities
	19	Newton: alchemy and gravity
	24	Newton: gravity and God
	26	Leibniz and Clarke: Newton vs. mechanism

Dec.	01	Leibniz and Clarke: absolute vs. relational space
	03	Leibniz and Clarke: God is in vs. outside the world; Term Paper Due
	10	Final Exam

Academic Misconduct

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct (http://studentaffairs.osu.edu/info_for_students/csc.asp).

Disability Services

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu/>.