

PHIL 402

Aristotle on logic and science

Loyola University Chicago: Fall 2019

Cuneo Hall 206
Monday 7:00pm–9:30pm

Instructor: Dr. Joshua Mendelsohn <jmendelsohn@luc.edu>.

Instructor's office Hours: Wednesday and Friday, 12:00pm–2:00pm. Crown Center 369.

Aristotle's *Prior Analytics* is the founding text of logic, and his *Posterior Analytics* is arguably the first systematic work in the philosophy of science. In this course, we will conduct a close reading of key passages from Aristotle's *Prior* and *Posterior Analytics* and work to understand Aristotle's project across these two joined works. We will begin by studying Aristotle's logic in the first book of the *Prior Analytics* before tackling the theory of scientific knowledge and proof Aristotle develops on the basis of his logical theory in the *Posterior Analytics*. Since we will approach the study of logic through its founder's own exposition, no background in logic will be presupposed. Topics will include Aristotle's idea of the syllogism, scientific proof or "demonstration", essentialism, the aims of science, definition and our knowledge of first principles. If time permits, we will read parts of Aristotle's scientific works and consider to what extent Aristotle's scientific practice reflects his philosophy of science. Students who take the course will be in a good position to do further work on Aristotle, the history of logic and the history of science.

Course objectives

This course is first of all an introduction to scholarship on Aristotle. Students who take this course will obtain background knowledge necessary to begin doing research on Aristotle, and will learn to read the text with a scholarly level of attention to detail and sensitivity to interpretive problems. They will also learn to engage with alternative interpretations in the secondary literature. The course will additionally offer students a grounding in syllogistic logic, which, as well as providing a useful preliminary for the study of modern logic, constitutes an indispensable foundation for work in the history of logic. Finally, the course will provide an introduction to the central ideas that underpin the classical conception of science and scientific knowledge, preparing students to do work in the history of science and both historical and contemporary work in the philosophy of science.

Books

There are two required books for the course:

1. Striker, Gisela (2009). *Aristotle. Prior Analytics. Book I: Translated with an Introduction and Commentary*. Clarendon Press.
2. Barnes, Jonathan (1993). *Aristotle. Posterior Analytics. Translated with a Commentary*. Second edition. Clarendon Press.

These two books have been ordered to the bookstore. Please **make sure you have the second edition** of Barnes's *Posterior Analytics*, not the first edition from 1975.

Greek is not required for this course. However, those who do read Greek should consider investing in an edition of the Greek text. The standard modern edition is edited by D. W. Ross. It is available either as:

1. Ross, W. D. (1964). *Aristotelis Analytica Priora et Posteriora*. Clarendon Press. Oxford Classical Texts series, or
2. Ross, W. D. (1949/1957). *Aristotle's Prior Analytics*. Clarendon Press.

Ross (1964) contains the Greek text and critical apparatus only. Ross (1949/1957) contains the same text as well as a wealth of useful front and back matter. Unfortunately Ross (1949/1957) is out of print, so you will need to find a used copy if you wish to buy it.

Assessment

1. A mid-semester take-home exam on syllogistic logic (25%). The exam will be distributed on September 30 and is due the following week on October 7 at the beginning of class.
2. A final paper (75%). The final paper will be due on December 9.
3. Non-graded hurdle requirements: (a) Three problem sets to help prepare for the mid-term exam, (b) a *divisio textus* and summary of the secondary literature for one session, and (c) a proposal for the final paper. Due dates are listed below.

Student accommodations

The university is committed to supporting students who require special accommodations to participate fully. In order to receive the accommodations you require, you *must* (i) register with the Student Accessibility Center (<http://www.luc.edu/sswd>), and (ii) present your accommodation letter to the instructor during the first two weeks of class. Accommodations cannot be provided without both these steps being taken.

Course schedule

The following is a provisional schedule. Readings and an up-to-date schedule will be made available through Sakai.

Aug. 26 **Introduction**

Sept. 2 **LABOR DAY – NO CLASS**

Part 1: Logic

- Sept. 9 **The definition of the syllogism. Syllogisms in the first figure** *Prior Analytics* I.1, 4.
Secondary literature: Lear, J. *Aristotle: The Desire to Understand*, pp. 209–231.
- Sept. 16 **Conversion. Syllogisms in the second figure.** *Prior Analytics* I.2, 5.
– First problem set due
- Sept. 23 **Syllogisms in the third (and fourth?) figure.** *Prior Analytics* I.6, 7.
– Second problem set due

Part 2: Science

- Sept. 30 **Meno’s puzzle and the *Posterior Analytics*** *Posterior Analytics* I.1. Cf. *Meno* 79e–86c, *Prior Analytics* II.21, esp. 67a.5–67b.11
– Third problem set due Secondary literature: Bronstein, D. “Meno’s Paradox in *Posterior Analytics* I.1”.
– Take-home exam distributed
- Oct. 7 **UNIVERSITY HOLIDAY – NO CLASS**
- Oct. 14 **Demonstration and principles** *Posterior Analytics* I.2, 10.
– Take-home exam due Secondary literature: Hintikka, J. “On the ingredients of an Aristotelian Science”.
- Oct. 21 **Circular proof and priority** *Posterior Analytics* I.3, 13.
Secondary literature: Goldin, O. “Circular Justification and Explanation in Aristotle”.
- Oct. 28 **Essentialism and scientific knowledge** *Posterior Analytics* I.4, 11.
Secondary literature: Bolton, R. “Aristotle on Essence and Necessity in Science”.
- Nov. 4 **Error and necessity** *Posterior Analytics* I.5–6, 16–17, 30.
– Paper proposal due
- Nov. 11 **The autonomy of the sciences** *Posterior Analytics* I.7–9, 32.
Secondary literature: Wilson, M. *Aristotle’s Theory of the Unity of Science*, pp. 1–39.

- Nov. 18 **Knowledge, perception and belief** *Posterior Analytics* I.31, 33.
Secondary literature: Morison, B. "Aristotle on the Distinction between What is Known and What is Believed".
- Nov. 19 **Inquiry** *Posterior Analytics* II.1–2.
(special meeting)
Secondary literature: Bronstein, D. *Aristotle on Knowledge and Learning*, pp. 74–107.
- Nov. 25 **Demonstrating a definition** *Posterior Analytics* II.7–10. Cf. *Posterior Analytics* II.3–6
Secondary literature: Bolton, R. "Essentialism and Semantic Theory in Aristotle".
- Dec. 2 **Our knowledge of principles** *Posterior Analytics* II.19. Cf. *Posterior Analytics* I.18, *Metaphysics* A.1, *Prior Analytics* II.23
Secondary literature: Hasper, P.S and Jurdin, J. "Between Perception and Scientific Knowledge".
Gasser-Wingate, M. "Aristotle on Induction and First Principles".

– Final paper due December 9 –