

Phil 401: The Scientific Revolution and the Mechanical Philosophy

BASIC INFORMATION

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Office Hours:	Wednesday 3:30-5:30 and by appointment
Course Website:	http://www.mayowilson.org/Teaching/HPS_Winter_2017.htm http://canvas.uw.edu

COURSE DESCRIPTION

At almost every university in the English-speaking world, philosophy majors are required to take a modern philosophy course, beginning with the work of Descartes and ending with Kant. Most philosophy students, therefore, learn about Descartes' views on mind and body, Locke's social contract theory, and Kant's defense of a priori, synthetic knowledge. Relatively few philosophy students, however, study Galileo's telescopic observations of sunspots, Boyle's airpump experiments, or Hooke's observations with the microscope. This leaves many philosophy students with a substantially incomplete understanding of the modern period. Although modern philosophers made important contributions to abstract metaphysics, epistemology, and political philosophy, their work was equally important in shaping modern science, and their views were influenced in important ways by an explosion of developments in sixteenth and seventeenth century empirical science.

This course is an overview of the "Scientific Revolution" in sixteenth and seventeenth century Europe, with a special focus on astronomy. We will study how the spread of Copernicanism was related to the eventual rejection of Aristotelianism and the growing adoption of the "mechanical philosophy" propounded by Boyle, Locke, and Descartes, among others.

The course presupposes no background in any science.

COURSE GOALS

By the end of the quarter, students should be able to explain in what ways the mechanical philosophers agreed and disagreed with Aristotle and scholastics about

- *Epistemology*, in particular, the role of testimony, authority, experiment, and logic as sources of knowledge,
- *Prediction and Explanation*, in particular, the role of mathematics, causation, primary and secondary qualities, microstructure in prediction and explanation, and
- *Empirical Theories*, in particular, the place of the earth in the solar system, the composition of matter, and the causes of terrestrial and celestial motion.

REQUIREMENTS

Understanding the history of science and philosophy requires patience and a willingness to engage with difficult texts. Thus, the central requirement of the course is to read the assigned texts carefully. Before each class period, I will ask you to answer two to five short questions about the readings. Most of the questions require only one sentence to answer, and none require more than a paragraph. Please bring both the assigned readings and your answers with you to class. Some students view frequent assignments/assessments as "busy work" or as an instructor's attempt to gauge which students are working hardest. That is not my intention at all. The philosophy of mathematics is a complex subject, and consequently, many of the assigned readings are somewhat difficult. When faced with

hard-to-understand texts, it is easy to become discouraged and to give up. One of my central duties, as an instructor, is to ensure that you do not give up when concepts and/or arguments are initially difficult to understand. The purpose of the nightly questions is threefold: (i) to encourage you to read the assigned texts closely and actively, (ii) to prepare you for class discussions in which we will clarify and build upon the readings, and (iii) to provide *me* with feedback about which concepts are most difficult for students to understand.

You will not be able to understand the course material without attending class. I teach some courses (e.g., introductory logic) in which I recognize that, for some very bright, motivated and hard-working students, attending class is not always necessary. This is not such a course. The assigned readings are extremely difficult for a number of reasons, and without class discussion and lecture, you will likely learn very little. To encourage you to attend and to make sure you are active in class discussions, I will often ask you a question at the end of class about the material that has been covered that day, and I will give you fifteen minutes to write a short response to said question.

Finally, to practice synthesizing material from multiple class periods, you are required to write three short.. More details about the topics of the papers can be found on the course website.

MY GRADING "PHILOSOPHY"

Assigning grades is an important but extremely difficult part of my job as an instructor. Before explaining how you will be assessed, I will describe the purpose of grades in my course. Many instructors attempt to use grades to perform (at least) four functions: (i) to provide feedback to students about how much they have learned, (ii) to provide feedback to students about how well they are performing in relation to other students in the class, (iii) to give incentives to students to learn particular skills, (iv) to record students' performance for future instructors, graduate schools, potential employers.

A moment's reflection shows that grades cannot perform all of four functions simultaneously. For example, if every student in a mathematics course earns a perfect score on an exam, then by the first criterion, each student ought to receive an "A". Why? An "A" grade accurately reflects how much students have learned. On the other hand, if every student earns a perfect score, then each student's performance is "average" for the class. If an instructor assigns "average" work a "C" grade and he or she thinks that grades ought to indicate the relative performance of students (i.e. fulfill the second function), then every student in the class would earn a "C." Similar reasoning shows the other criteria also conflict with one another.

For these reasons and others, I use grades only for the first and fourth purposes, namely, to provide you (and others) with feedback about how well you have learned the skills and facts taught in the course. Very roughly, a final grade of an "A" grade indicates that your knowledge of the course material and your performance of the skills taught in the course are both excellent; a "B" grade indicates they very good; "C" indicates that you have acquired a general understanding of the material and skills, but you have missed some finer points; "D" indicates that your work contains some very serious errors and misunderstandings. I fail students only when their work contains very serious errors and misunderstandings throughout.

GRADING

Assignment Grades

I use rubrics when assigning you grades on more substantial assignments (e.g., papers and presentations). Rubrics contain detailed descriptions of which skills you are performing well and which are in need of improvement. I encourage you to look at the rubrics before you write your papers so that you know exactly how you will be assessed. Even better, find a partner and grade each other's

papers using the provided rubrics. Doing so gives you experience evaluating philosophical work and will improve your own writing.

I do not regrade assignments, but I would be happy to clarify why you received the grade that you did.

Final Grades

Your final grade (as a percentage) is a weighted average, which is calculated using the following weights:

- Nightly Reading Assignments (weighted evenly) - 35%
- Participation - 10%
- First Paper (about 1000-1200 words; limit of 1,500 words) – 15%
- Second Paper (about 1000-1200 words; limit of 1,500 words) – 15%
- Third Paper (about 1200-1500 words; limit of 1,500 words) – 25%

It is necessary to write all three papers in order to pass the course. Your final grade will be converted to a four point scale using the following equation:

$$\text{Four Point Scale} = \frac{\text{Percentage}}{10} - 5.5$$

For example, if your final percentage is 90%, then your final grade will be $3.5 = \frac{90}{10} - 5.5$.

COURSE MECHANICS

Submitting assignments

Reading assignments are due at the beginning of class. You should bring a typed, hard copy of your assignment to class; your answers should not exceed the front side of one page. At the end of class, I will ask you to turn over your reading assignment and respond to a question about the material from class. You can write your response in pencil or pen.

All papers should be submitted electronically via Canvas. Please do not email me your papers unless you already have tried to upload them via Canvas. When a class exceeds even a small number of students (e.g., ten), it is difficult for an instructor to organize and maintain a record of students' work if it is submitted via email.

Late assignments and extensions

I do not accept late work. Here's why.

With respect to reading assignments, I do not grant extensions because the purpose of these assignments is to ensure that you are ready to participate in class. Clearly, completing the assignment *after* class does not prepare you *before* class. Submitting an incomplete reading assignment is far better than submitting nothing for both you as a student and me as an instructor: (1) you get

partial credit for partial work and (2) the fact that your assignment is incomplete provides me with information about what you did and did not understand from the assigned readings.

I also do not accept late work on papers, unless you experience some sort of life-changing event. Such “life-changing” events include (but are not limited to) sudden surgery, the death or sickness of a family member, financial emergencies, house fires, etc. If you need to ask for an extension on a paper, however, you should talk to me about why, and you should bring documentation (e.g., a note from a psychiatrist, or a plane ticket verifying that you flew home for a funeral) explaining your circumstances. I recognize that you are taking several courses and that there are many important events in your life that trump writing a paper for a philosophy course. But you have plenty of time to complete the assignments for this class (as paper topics are available from the first day of class), and in the absence of compelling personal reasons, you should not need to request an extension on an assignment. One aspect of achieving success in college is learning how to manage your own time.

If you are not granted an extension, then five percentage points will be deducted from your final grade (on the paper) for every twelve hour period that elapses between the due date and the time at which you turn in your paper.

Computer use

I highly encourage you to leave all computers at home. Instead, I suggest you bring a notebook, a pen or pencil, and hard copies of the assigned readings. Extensive empirical evidence indicates that students who use computers learn less for two reasons. First, students who use computers often attempt to “multi-task” (e.g., take notes, read, and browse the internet simultaneously), and extensive research shows that (i) no one can multi-task effectively, and (ii) multi-tasking hinders learning. Further, research shows that even those students who use computers exclusively for note-taking still learn more when they take notes by hand [1].

Nonetheless, there is one compelling reason for using a computer in my class. Textbooks are expensive, and many of you do not have several hundred dollars to spend on books each quarter. That’s why I provide you with electronic copies of all assigned readings. For this reason, many of you may wish to bring a laptop to class so that you can refer to the readings. I understand, but if you have the ability to print copies of the readings, I ask you to consider how small the price of printing is in comparison to its educational value.

So here is my policy on computers in the classroom. You may not use phones or any other hand-held devices during class. You may bring a laptop to class, but it can only be used for note-taking and/or referring to the readings assigned for the day. If you bring a computer, turn off your Wi-Fi and disconnect from all networks immediately upon entering the classroom. If I (or any other student) sees that you are browsing the internet, instant messaging, playing video games, or some other non-academic activity during class, you forfeit the right to use a computer in the classroom. When you browse the internet in class, you harm not only your own education but also that of those students around you.

STUDENTS WITH DISABILITIES

If you have a disability that may affect the quality of or timeliness with which your work is submitted, please visit the office of disabilities resources for students (DRS) at the beginning of the semester and have them send me appropriate suggestions concerning how to modify course requirements. I want every student to succeed, and I am more than happy to adjust the course so that it suits you. The DRS’s website is listed in the important websites section at the end of this document.

ACADEMIC INTEGRITY

Almost no student plans to cheat or plagiarize at the beginning of the semester. The two most common reasons for plagiarism are (1) ignorance of what constitutes plagiarism and (2) lack of

planning. In other words, students plagiarize most frequently because they either do not know what “plagiarism” means or they run out of time (and think that copying another person’s paper is a quick fix). Here is how you can make sure you do not plagiarize.

First, read the university’s definition of “plagiarism”, which can be found in the list of websites below. If you know the university’s definition of “plagiarism”, then you are less likely to plagiarize. Second, ask for extensions when you need them, and come talk to me if you need extra time. I know what it is like to have too much to do and not enough time. Let’s try to find a solution together.

If, despite your best intentions and my advice, you find yourself contemplating cheating in the future, you should know two things. First, the penalties are extremely high, and second, you will almost certainly get caught. Why are the penalties high? I am required to report your conduct to the Dean of Arts and Sciences. You will then attend an embarrassing and time-consuming trial-like procedure in which the Committee on Academic Conduct will evaluate your conduct and issue some form of punishment. Some penalties are small (e.g., warning or probation), but the committee may also suspend or dismiss you from the university. In addition to institutional penalties, I have the following policy: students who plagiarize once will have their final GPA multiplied by $\frac{2}{3}$ (e.g., a 3.9 final grade will become a 2.6); students who are caught cheating twice will receive a zero final grade.

RESOURCES AND WEBSITES

You are attending a great university with many resources that allow you to succeed. Here are some suggested resources.

Resource	Website
Philosophy Writing Center	http://www.phil.washington.edu/resources/writing-center
Clue Writing Center	http://depts.washington.edu/aspuw/develop/writing-center/
Disability Resource Services	http://depts.washington.edu/uwdrs/
Definition of Plagiarism	https://depts.washington.edu/grading/pdf/AcademicResponsibility.pdf

MISCELLANEA

Additional information about academic integrity, obtaining incomplete grades, safe campus, appealing your grade, and more can be found on the syllabus attachment document on the Canvas website.

REFERENCES

- [1] P. A. Mueller and D. M. Oppenheimer. “The Pen Is Mightier Than the Keyboard Advantages of Longhand Over Laptop Note Taking”. In: *Psychological Science* (Apr. 2014), pp. 1159–1168.