Problems in Philosophy of Science: PHIL 242

Fall 2020

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Course Description

This course is intended as an introductory course in the Philosophy of Science in which participants which be exposed to a number of philosophical problems, existing solutions, and given the skills and opportunity to develop novel criticisms and solutions. To that end, the course will focus on a number of distinct topics in the Philosophy of Science which will require extensive engagement with primary philosophical texts. Moreover, each student will be expected to engage in classroom discussions during synchronous seminar sessions as this is the primary opportunity to share, develop, and refine philosophical ideas throughout the semester. Finally, students will be expected to delve deeply into one particular topic and write a *substantial* philosophical paper which engages critically with the existing literature.

Meeting Time

There will be two synchronous seminars per week. These seminars will be conducted over Zoom. All students are expected to attend these synchronous sessions. Seminars will be recorded and recording will be made available over Sakai at the end of class.

Time: MW Noon (EST) – 1:15: PM (EST)
Location: Zoom Room (via Sakai Site)

Office Hours

Office hours will be conducted over Zoom. There are no set times for office hours. Students are encouraged to contact instructor via email to arrange a mutually convenient time.

Assessment

The semester grade is determined by the following breakdown:

- Participation: 20%
- Topic Essays: 30%
- Prompt Meeting: 5%
- Prompt Proposal: 5%
- Term Paper: 40%

<u>Participation</u>

All students are expected to *actively* engage in seminar discussions. This includes answering instructor led questions concerning the content of assigned readings, questioning and responding to peer comments, and active listening. For this reason, it is *highly* recommended that students

use the Zoom video function to demonstrate active listening. For those unable to use video during Zoom due to accessibility issue, it is necessary to actively participate orally.

In light of the pandemic and the difficulties associated with attending the synchronous sessions, for those unable to attend the seminars, there are alternative **supplementary assignments**. These assignments are available, upon student request for students who are unable and will involve short essays revolving around the assigned readings for the missed seminar. All supplementary assignments count in lieu of attendance and participation in synchronous seminar sessions and are therefore worth a maximum of twenty percent of the semester grade.

Topic Essays

At the conclusion of each philosophical topic, students are required to write one short essay related to the relevant topic. The essay must be based off of a prompt, chosen from a set provided by the instructor. Individuals essays are worth **five percent** of the semester grade and the topic essays are cumulatively worth **thirty percent** of the semester grade.

Term Paper

The term paper will be an analytic philosophical paper investigating a particular topic in the Philosophy of Science. This entails that students are expected to both interact with the existing philosophical literature and to provide novel criticisms, and if desired, provide a novel philosophical account.

Importantly, students are not limited to writing on a topic explicitly covered in the course. But students **must** submit a term paper proposal to the instructor for approval. In fact, crafting the prompt is an integral part of the assignment. To that end, students are **required** to meet with the instructor for a mandatory office hour meeting to discuss their term paper prompt and then to submit a prompt proposal. Both of these steps are worth **five percent** of the total semester grade.

Extensions for the term paper must be arranged ahead of time on a case-by-case basis with the instructor.

Term Paper Timeline:

- Office Hour Meeting Deadline: 9/30/20
- Term Paper Proposal Deadline: 10/16/20
- Term Paper Deadline: 11/19/20

Academic Integrity

The Duke Honor Code applies to this course, as it does for all other courses.

Content Warning

Although much of the course will be dealing with abstract subjects, some of the reading may involve potentially sensitive topics. Do not hesitate to contact me with any concerns you may have with engaging with such topics in an academic setting.

Readings

There are two primary texts for this class. The first text is *Philosophy of Science: The Central Issues* by Martin Curd, J.A. Cover, and Christopher Pincock. This book is an anthology with abridged versions of canonical papers from the Philosophy of Science. It is worth noting that there are two editions of this text. The first edition is all that is required for the course although the second edition is also suitable for the course. The second text is *The Structure of Scientific Revolutions* (Second Edition – or later) by Thomas S. Kuhn. Both texts must be purchased.

Schedule and Topics

Date	Topic	Reading
8/17/20	Introduction	None
8/19/20	Demarcation	Popper, K. (1957) "Science: Conjectures and Refutations" [CCP: 3-10]
8/24/20	Demarcation	Lakatos, I. (1977) "Science and Pseudoscience" [CCP: 20-26]
8/26/20	Demarcation	Laudan, L. (1982) "Commentary: Science at the Bar – Causes for Concern" [CCP: 47-52]
8/31/20	Explanation	Carnap, R. (1966) "The Value of Laws: Explanation and Prediction" [CCP: 651-656]
9/2/20	Explanation	(1) Hempel, C. (1962) "Two Basic Types of Scientific Explanation" [CCP: 657-666] (2) Hempel, C. (1965) "The Thesis of Structural Identity" [CCP: 667-676]
9/7/20	Explanation	(1) Hempel, C. (1965) "Inductive-Statistical Explanation" [CCP: 667-690] (2) Railton, P. (1978) "A Deductive-Nomological Model of Probabilistic Explanation" [CCP: 691-710]
9/9/20	Explanation	Kitcher, P. (1981) "Explanatory Unification" [CCP: 711-734]
9/14/20	Explanation	Woodward, J. (2003) "The Manipulability Conception of Causal Explanation" [CCP: 735-751]
9/16/20	Confirmation	Gillies, D. (1993) "The Duhem Thesis and The Quine Thesis" [CCP: 271-287]
9/21/20	Confirmation	Hempel, C. (1966) "Criteria of Confirmation and Acceptability" [CCP: 424-438]
9/23/20	Confirmation	Achinstein, P. (1994) "Explanation v. Prediction: Which Carries More Weight?" [CCP: 439-450]
9/28/20	Confirmation	Chalmers, A. (1999) "The Bayesian Approach" [CCP: 565-578]
9/30/20	Confirmation	Mayo, D. (1996) "A Critique of Salmon's Bayesian Way" [CCP: 550-564]
10/5/20	Change and Progress	Kuhn, T. (1970) "A Structure of Scientific Revolutions" [Chapters 1-5]
10/7/20	Change and Progress	Kuhn, T. (1970) "A Structure of Scientific Revolutions" [Chapters 6-9]
10/12/20	Change and Progress	Kuhn, T. (1970) "A Structure of Scientific Revolutions" [Chapters 10-13]
10/14/20	Change and Progress	Kuhn, T. (1970) "A Structure of Scientific Revolutions" [Postscript]
10/19/20	Objectivity	Kuhn, T. (1977) "Objectivity, Value Judgment, and Theory Choice" [CCP: 94-110]
10/21/20	Objectivity	Longino, H. (1990) "Values and Objectivity" [CCP: 144-164]
10/26/20	Realism	Maxwell, G. (1962) "The Ontological Status of Theoretical Entities" [CCP: 1049-1059]
10/28/20	Realism	Musgrave, A. (1985) "Realism versus Constructive Empiricism" [CCP: 1083-1107]
11/2/20	Realism	Laudan, L. (1981) "A Confutation of Convergent Realism" [CCP: 1108-1128]
11/4/20	Realism	Hacking, I. (1982) "Experimentation and Scientific Realism" [CCP: 1140-1155]
11/9/20	Unity and Reduction	Nagel, E. (1974) "Issues in the Logic of Reductive Explanations" [CCP: 911-926]
11/11/20	Unity and Reduction	Kitcher, P. (1984) "1953 and All That: A Tale of Two Sciences" [CCP: 970-1002]
11/16/20	Conclusion	None