Philosophy 480: Philosophy of Science

Instructor: Daniel Steel
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Office hours: 10 am to noon Tuesday, or by appointment
Class Meeting Time and Place: Monday and Wednesday 3:00-4:50, Room 104 Giltner Hall

Texts
Philosophy of Science: The Central Issues, edited by Martin Curd and J. A. Cover. (C&C, for short)
Quantum Mechanics and Experience, David Albert
Creating Mental Illness, Allan Horwitz

Course Description
Within the last several centuries, scientific knowledge and the technology it made possible have drastically altered the world. Yet most of us have little understanding of how scientific knowledge is produced, what makes science different from other ways of learning about things, or what exactly science says about what the world is really like. Lack of understanding about these matters is not merely the result of ignorance, but derives in large measure from the intellectually challenging questions that these issues raise. In this class, then, we examine writings that defend alternative viewpoints on these topics. Moreover, we will read two books that explore some of these issues with regard to a pair of fields, namely, quantum mechanics and clinical psychology. In spite of the enormous differences between these two fields, both confront fundamental and complex questions about what it really is that they study.

Grades
The grades will be based on class participation and writing assignments, which will fall into two categories: think pieces and argumentative essays.

- Class Participation (15%): The value of the experience that you can hope to gain from this course is highly dependent on your reading the material indicated on the syllabus before coming to class on that day. It is likely that you will sometimes find the readings difficult to understand. When this happens I encourage you to raise your questions in class. Each class will commence with a No Such Thing as a Dumb Question (NSTDQ) time, during which students are encouraged to ask any questions whatever about the readings for that day. Actively participating in NSTDQ time is an excellent way for you to earn credit for the participation portion of your grade. Of course, engaging in discussions in a thoughtful manner during other segments of class time will also contribute to your participation grade. Behaviors that will adversely affect your participation grade include: skipping class, sleeping in class, reading the newspaper in class, doing homework
for another class in class, checking email in class, and listening to your iPod in class.

- **Think Pieces (35%)**: There will be six short essay assignments (2-3 pages each). These assignments will be announced in class and posted on the course website. Essay questions will generally concern the material discussed in the previous two or three classes. These short essays, or “think pieces,” are intended to stimulate you to think independently and creatively about some issue, concept, or argument discussed in class. I will drop your lowest think piece grade.

- **Argumentative Essays (50%)**: In addition, there will be two longer essays (6-7 pages each). The first will count for 20% of your grade and the second for 30%. These essay assignments will ask you to defend a point of view on some topic discussed in class. The first long essay will be due at the midpoint of the term, while the second will be due during exam week. The assignments will be announced in class and the essay topics posted on the course website.

- **Term Paper Option**: Graduate students and advanced undergraduates will have the option of substituting a term paper (12-14 pages) for the two 6-7 page essays. If you decide to pursue this option, you will need to devise a topic on your own and you should see me to get approval for your topic beforehand. If you do the term paper, it is due during exam week.

**Course Schedule**

**Week 1**: Demarcation Criteria
8/29: Introduction
8/31: C&C, pp. 3-17.

**Week 2**: Demarcation Criteria continued
9/5: No Class—Labor Day
9/7: C&C, pp. 20-35.

**Week 3**: Demarcation Criteria continued; Rationality, Objectivity, and Values begun
9/14: C&C, pp. 86-118.  **Think Piece 1 Due.**

**Week 4**: Rationality, Objectivity, and Values continued
9/19: C&C, pp. 139-167.

**Week 5**: Duhem-Quine Thesis and Underdetermination
9/26: C&C, pp. 257-279.  **Think Piece 2 Due.**

**Week 6**: Underdetermination continued; Confirmation
10/5: C&C, pp. 627-644.
Week 7: Explanation
10/12: C&C, pp. 720-745

Week 8: Laws of Nature
10/17: The Best Systems Analysis of Laws (posted on course website). First Argumentative Essay Due

Week 9: Empiricism and Scientific Realism
10/26: C&C, 1088-1111. Think Piece 3 Due.

Week 10: Scientific Realism continued, QM begun
10/31: C&C, pp. 1114-1132.
11/2: Albert, chapter 1

Week 11: QM continued
11/7: Albert, chapter 2 (skip pages 39-52)
11/9: Albert, chapter 3. Think Piece 4 Due.

Week 12: QM continued
11/14: Albert, chapter 4
11/16: Albert, chapter 7 (skip pages 136-144 and pages 171-179)

Week 13: Creating Mental Illness
11/21: Horwitz, introduction and chapter 1. Think Piece 5 Due.
11/23: No Class—Thanksgiving Holiday

Week 14: Creating Mental Illness continued
11/28: Horwitz, chapters 2 and 3
11/30: Horwitz, chapters 4 and 5

Week 15: Creating Mental Illness continued
12/5: Horwitz, chapters 6 and 7. Think Piece 6 Due.
12/7: Horwitz, chapter 8 and conclusion

Final Argumentative Essay Due: In my office (509 S. Kedzie Hall), Thursday, December 14, between 3:00 and 5:00 pm.