

Philosophy 310
Philosophy of Science
Fall 2004

MWF 3—3:50pm, Palmer 206
Professor: Brendan O’Sullivan
Office: Clough 402
Office hrs: MW 4:00-5pm, Th 3:30-4:30pm and by appointment
Phone: 843-3096
e-mail: osullivanb@rhodes.edu

Course Description:

Arguably, science is the greatest achievement of western civilization. As such, the set of practices and theories that collectively get labeled as science merits rational scrutiny. The philosophy of science undertakes just such an enterprise. Instead of learning scientific theories and learning how to solve certain scientific problems, in this course we will be examining conceptual questions about science. Although you do not need to have had college science courses to take this course, certainly it will be more beneficial if you have. The questions that we will take up are as follows (in the order in which we will discuss them):

1. What is the nature of science? In particular, is scientific practice cumulative? Are we constantly increasing scientific knowledge, or does scientific evolution consist of a series of incommensurable theories?
2. What is the relation between scientific theory (or hypothesis) and the evidence that “supports” it?
 - a. How are scientific theories rejected or falsified?
 - b. How much and what sort of evidence is needed before belief in a theory is rational?
3. Are scientific theories objective? What does it even mean to say that a theory is objective?
4. What is the structure of a scientific explanation? What conditions need to be met in order for an explanation to be scientific?
5. Can we expect all theories to be ultimately reduced to physics? What is even meant by reduction here?

Course Objectives:

I have several objectives for the course. They can be divided into two categories:

Skills:

1. To teach you how to read a philosophy essay
 - a. (This may sound easy. I assure you that it is not)
2. To teach you how to present a philosophical argument clearly and accurately, both orally and in writing.
3. To teach you how to assess critically an argument.
4. To foster your ability to do philosophy independently.

Content:

1. To teach you some of the basic concepts of philosophy.
2. To acquaint you with some of the main issues in the philosophy of science.
3. To teach you some of the main positions taken on these issues, including their strengths and liabilities.
4. To guide you in adopting a rationally defensible position on these issues.
5. To guide you in formulating a more sophisticated conception of the nature of science.

Required Texts:

There are three required books for the course.

1. Thomas Kuhn. The Structure of Scientific Revolutions. 3rd Ed. Chicago UP, 1962.
2. Martin Curd & J.A. Cover. Philosophy of Science: the Central Issues. Norton, 1998.
3. Stephen Jay Gould. The Mismeasure of Man. Norton, 1981.

In addition, there will be readings placed on reserve in Burrow Library.

Required Work and Grading:

The written work for this course will consist of two 5 page papers, and an exam. The due dates below are tentative. At the end of the semester, I'll calculate your course grade as follows:

5 pg. paper	25%	October 4
5 pg. paper	25%	November 1
Exam	30%	December 8
Preparation/Participation	20%	Continual

Preparations/Participation

You will notice that 20% of your final grade is determined by your participation in, and preparation for, class. You should begin to develop, in an intentional way, your participation/preparation skills. What is it to make a positive contribution to a class discussion? You should think about that question.

I've attached the criteria I will be using to grade your class participation. Each day, after class, I will give each of you a grade from 0 to 4, with 4 being the highest. Let me highlight a few of the skills that you should be working on:

- Actively reading the assignment.
- Thinking critically about the assignment.
- Voicing your interpretation of a text in a clear way.
- Listening and responding to your fellow students.
- Contributing judiciously, neither dominating discussion, nor silently withdrawing.

In terms of preparation, I have included a handout outlining a standing written assignment you have for each reading.

Attendance:

Attendance is required. Your course grade will be penalized by excessive absences. In extreme cases, an F for the course may be assigned.

Late work policy:

I am extremely reluctant to grant extensions on written work, and typically will do so only given circumstances so serious that they require the attention of the Dean of Students (e.g. medical or family emergency). For unauthorized late work, I will deduct 1/3 of a letter grade each day (e.g., A- to a B+, or a B+ to a B). Each calendar day counts. Note: you can always submit your paper via e-mail.

Class Conduct:

Please treat each other with courtesy and respect. Listen when your classmates offer their insights. Offer your own criticisms constructively.

I expect students to arrive to class on time. Do not make a habit of entering the class 5 min. late. It is distracting to the other students and to me and undermines the course's goals.

The Honor Code:

You are expected to observe the Honor Code at all times. All work on graded material should be your own. I encourage you, however, to study for the midterms together, and in general to discuss the course outside of class (with each other and with me). We'll talk about Honor Code restrictions on specific assignments as the need arises.