PHIL 209: Philosophy of Science

Fall 2009
Ashley McDowell

MWF 2:40 – 3:55
UL 302

Office: Humphrey House 202
Office phone: 337-7077
Cell phone: 303-6321 (record this for meeting safety net)
email: mcdowell@kzoo.edu or ashley.mcdowell@gmail.com
Office hours: Tues & Thurs 3:00 – 5:00, and by appointment
Text: Theodore Schick, Jr., Readings in the Philosophy of Science

Course Description
This course is a critical analysis of the sciences and their methods that explores why – and to what extent – the sciences provide knowledge about reality. Topics include the demarcation of science from nonscience, the nature and justification of scientific theories, realism versus antirealism, scientific change and revolution, whether all sciences reduce to physics, comparison between the natural and social sciences, and the issues and applications of philosophy of science.

A philosophical study of these topics is one in which we give thoughtful reasons for positions on various issues. In this course, through readings, lecture, and discussion, you will learn about the views of prominent historical and contemporary philosophers on some key issues in the philosophy of science.

In studying these issues we will be reading academic philosophical articles. The ideas and arguments in them will be deep and challenging; you should expect to do most readings more than once. As we will discuss, there will be important interconnections and dependency relations among the readings, so you must also keep up with the reading assignments.

The class will be a combination of lecture and discussion, and all students will be expected to contribute. In-class discussions will be conducted with respect and a mutual interest in working on philosophical problems, so that all views will be open to thoughtful criticism. We will be approaching other views – and our own – with an open-minded but critical eye. The focus will be on learning, assessing, and providing arguments for positions, to try to come to the most thoughtful position possible on these questions. Students will be evaluated on how well you have learned the views and arguments of the authors studied, and how well you formulate original arguments for your own positions.
**Structure of the Course, Course Requirements, and Grading Scheme**

The general structure of our weeks will be as follows:
- On Mondays, you should have read all of the material assigned for a first time, and identified things you’d like clarified or explained. Mondays are for me to help you work your way through the readings we’re studying that week.
- On Wednesdays, you should have reread the material for more thorough understanding, and be prepared to work through it with other class members. Wednesdays are for applying the material to a real-world scientific issue within groups, in order to explore and firm up your comprehension.
- On Fridays, we’ll discuss the readings for a final time, briefly clearing up remaining unresolved issues and discussing the overall issue in a way that integrates the material and its significance. At the end of class on Fridays, there will be a quiz of approximately 20-30 minutes, covering that week’s topic and readings.

**Quizzes: 75%**

Quizzes take place on Fridays (except the one on Week 1’s material, which will be on Monday of Week 2). The lowest quiz grade will be dropped, and the average of the rest will count as 75% of your grade. These quizzes will test for your comprehension of the material studied, and your ability to display your understanding as it applies to particular cases. Questions will vary: for instance, there may be short essay, multiple choice, or true/false questions. I expect you to understand the main positions of the philosophers studied, key arguments, important terminology, comparisons and contrasts between views and philosophers, and ways the views might apply to real-world scientific issues.

**Participation and Demonstrated Preparedness: 25%**

I expect regular attendance in this class. Although attendance makes up no official percentage of your grade, missing class will negatively affect it. Repeatedly missing class may result in a substantial lowering of your grade for the course.

Participation is expected. In a philosophy class of this kind, discussion is absolutely essential, and may be the way you learn most about the material. I know that participation is difficult for some people, but you can consider this a safe place to practice contributing to a group discussion, which you will surely need to do throughout your life.
I will keep general track of your contributions in class. Keep in mind that contributions can take various forms, including asking for clarification, participation in group work, and giving helpful examples. Keep in mind also that more does not necessarily mean better: those who excessively dominate discussions, speak disrespectfully, or otherwise use their voices in a negative way may be penalized for doing so. If you are in doubt, or if you are interested in advice about how to participate more effectively or more easily, ask me. I will also post a document about participation on the Moodle site.

I will set up discussion forums on the Moodle site for class members to discuss the course material however they like. I won’t necessarily read these forums, and your postings are not for any grade; they are for you to collaborate on understanding the material, raise issues we couldn’t get to in class, try out applications to real-life situations, or whatever might be helpful to you. If you’d like me to include consideration of your Moodle posts in your participation grade, let me know near the end of the course and I can do so – but participation on Moodle won’t altogether replace participation in class. It would be more like making up to some degree for insufficient participation in class sessions.

Demonstrated preparedness includes evidence of your having read the assignments carefully, thought about and tried to answer any study questions or tasks I’ve given, prepared questions or comments in advance of class, and prepared to the extent that you can participate productively in group or class discussions.

I expect you to demonstrate that you’ve put good effort into your reading: don’t succumb to the misconception that in order to read something you only have to move your eyes over the lines. I expect you to read the material in a more sophisticated way, thinking as you go. You should be asking yourself the main points, making sure you understand the structure of the reading, thinking about how this reading relates to others you’ve done, and otherwise working to comprehend the material, not just to complete a technical “reading” of it. You might try highlighting, underlining, making margin notes, or outlining – whatever helps you focus and understand.

Again, if you want to know how you’re doing on demonstrated preparedness, or want to talk about how to do this well, get in touch with me.

**Schedule**

(all readings from Schick text)

**WEEK ONE**

W  General Introduction, p. 1-2, and
Part 1: Science and Nonscience: Defining the Boundary (readings 1 & 2)
(Ayer, Popper)
F  Part 1: Science and Nonscience: Defining the Boundary (readings 3-6)
(Kuhn, Lakatos, Laudan, Ruse)

**WEEK TWO**

Part 3: Laws and Explanation: The Nature of Scientific Theories (readings 12 & 13)
(Hempel, Salmon)

Note: Quiz on Week 1 material Monday, and quiz on Week 2 material Friday)
WEEK THREE
(van Fraasen, Kitcher, Salmon)

WEEK FOUR
Part 4: The Unity of Science: Are All Sciences Reducible to Physics? 
(Oppenheim and Putnam, Fodor, Darden and Maull, Dupre, Reisch)

WEEK FIVE
Part 5: Theory and Observation: Is Seeing Believing? 
(Carnap, Hesse, Hanson, Kuhn, Laudan)

WEEK SIX
Part 6: Science and Objectivity: The Science Wars 
(Latour and Woolgar, Cole, Harding, Soble, Sayers, Richards)

WEEK SEVEN
Part 7: Realism and Antirealism: Does Science Reveal Reality? 
(Maxwell, van Fraassen, Churchland, Hacking, Fine, Brown)

WEEK EIGHT
Part 8: Science and Religion: Reason Versus Faith 
(Feyerabend, Dawkins, Plantinga, McMullin, Atkins, Gardner)

WEEK NINE
Part 9: Contemporary Issues and Applications: Philosophy of Physics, Philosophy 
of Biology 
(Vandegrift, Stenger, Gould, Caplan)

WEEK TEN
Part 9: Contemporary Issues and Applications: Philosophy of Psychology 
(Thouless, Radner and Radner)