

Philosophy of Science (PHIL 3550)

Spring 2011 - Online

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Online Office Hours (in Course Chat Room): Tue. and Thu. 11:00 AM-12:00 PM.

Course Description:

Science appears to be extraordinarily successful in two crucial respects. First, science apparently serves as an extremely reliable vehicle for arriving at the truth (as contrasted with astrology or palm reading). Second, the methodology of science seems eminently rational (again as opposed to the methodologies of astrology or palm reading). Philosophers have been quite interested in these two apparent virtues of science. Some philosophers think that the two virtues are illusory and that, upon reflection, science is not significantly superior to astrology or palm reading. Some philosophers even reject concepts like truth and rationality as somehow bogus or illegitimate. Our basic goal in this course is to survey 20th century philosophy of science as centered upon such disputes. To this end, our focus will be upon the following question: are truth and rationality genuine features of scientific inquiry, or are they mere illusions? In pursuit of the answer to this question, we will discuss topics such as: confirmation and disconfirmation of theories, falsifiability and pseudo-science, induction, probability and statistical inference, prediction, explanation, empirical equivalence, holism, relativism, and realism.

Required Texts:

Theory and Reality: An Introduction to the Philosophy of Science. By Peter Godfrey-Smith. Published by University of Chicago Press, 2003.

The book is available through the WMU bookstore or through any online vendor.

Course Objective:

- to understand the nature of induction and the problems of inductive reasoning.
- to be able to provide an accurate definition of science that distinguishes it from non-science.
- to understand standard theories regarding the evolution of scientific theories and the progress of science.
- to understand the social, ethical, and moral dimensions of the scientific method.
- to understand the way in which scientific theories are literally true (or not true) of the world.

Technical Support:

For any technical support pertaining to the e-learning website, contact ATIS by phone at (269) 387-4200 or by email at atis.footprints@wmich.edu. Since this course is entirely online, it is **your** responsibility to make sure that you understand how to log-in, take quizzes, and generally follow the course content. If you do not know how to do this, contact the

email address above. The first assignment (listed below) will help acquaint you with some online procedures.

Email:

All correspondence regarding this course will either be sent to WMU email accounts. Students are required to regularly check their WMU accounts, and all correspondence from them should be sent from those accounts.

Online Course Orientation:

Before we get into the details, familiarize yourself with the online environment. On the course front-page, you'll see a folder called "Course Orientation". Inside, you'll find a "Course Orientation Assignment". Please complete this assignment ASAP. As part of the assignment, you'll learn how to use the discussion boards, as well as take a quiz. Links to the discussion boards and the quiz are provided in the "Course Orientation" folder.

Important: you **must** take the "Orientation Quiz" in order to proceed in the course. The quiz is non-graded, but it is **mandatory**. The quiz will familiarize you with how online quizzes work, so study it carefully; all subsequent quizzes will behave like this sample quiz!

Be sure to allow your browser to open pop-up windows for the blackboard site. Both quizzes and lectures use pop-up windows.

How the Course Will Be Run:

Below, you will find a schedule of readings, lecture-videos, and quizzes. You should complete the reading and view the lecture-videos according to this schedule. The readings are taken from the required textbook. Notes and/or videos can be found under the "Learning Modules" section of the course website or the "Lessons" folder on the front page.

After reading and viewing the material for a given date, you will need to take an on-line quiz. Quizzes will only be open on the dates listed below, from 6:00AM to 11:59PM. After this time, they will be permanently closed. Your final grade will be based on 14 quizzes, with the lowest 3 quiz grades dropped. For this reason, there will be **no** make-ups for quizzes. If, for any reason, you must miss a quiz, that missed quiz will count as one of your lowest grade.

I will not accept technical difficulties as valid reasons for missing quizzes. If a technical difficulty prohibits you from taking a quiz, that will count as one of your lowest grades. Consequently, be sure to take the quiz from a computer with a good Internet connection, with a browser and operating system that have worked for previous quizzes.

Each quiz will consist of 10 multiple choice questions (each worth 8 points), and a short-answer questions. You will have 20 minutes for each quiz. These 20 minutes start as soon as you start the quiz. You should only take the quiz from a location with a reliable internet connection. If your connection drops out, the quiz timer will **not** stop. Quizzes will not be

re-opened because of technical difficulties on your end. **Be sure to save your quiz answers as you go along.**

Grading:

Your final grade will be based on:

Bi-weekly quizzes: 100%

Your letter grade will be calculated according to the following rubric:

92.5% - 100%	A
87.5% - 92.5%	BA
82.5% - 87.5%	B
77.5% - 82.5%	CB
72.5% - 77.5%	C
67.5% - 72.5%	DC
60.0% – 67.5%	D
Below 62.5%	E

A curve may be applied depending on overall class performance.

Other Details:

Make-ups: make-up quizzes will only be allowed under special circumstances. If you are in such circumstances, please provide the relevant documentation. If you know ahead of time that you won't be able to complete a certain assignment, let me know immediately. In general, the earlier you contact me, the more forgiving I will be and the easier it will be to schedule a make-up. Don't wait till the last minute, or worse, till *after* the quiz/exam/assignment.

Academic Honesty: You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate and Graduate Catalogs that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. The policies can be found at <http://catalog.wmich.edu> under Academic Policies, Student Rights and Responsibilities. If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with your instructor if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.

Special Accommodations: If you have a disability that requires special testing accommodations or other classroom modifications, please notify both me and the office of Disabled Student Resources and Services as soon as possible. The office of Disabled Student Resources and Services can be found at Disability Resources and Services can be found at <http://dsrs.wmich.edu/> or (269) 387-2116.

Religious Observances: The university's religious observances policy (MOA-07/02) states that students "who must be absent from scheduled classes to fulfill religious obligations or observe practices associated with their faith not be disadvantaged. However, it is the student's responsibility to make arrangements with his/her instructors in advance. It is in the student's best interests to approach each instructor expeditiously and with sufficient notice that the rights and responsibilities of the instructor are not disrupted." It is *your* responsibility to check the class meeting schedule and inform me of possible observance conflicts at least 3 weeks before the observance date.

You may also consult <http://osc.wmich.edu> and www.wmich.edu/registrar to access the Code of Honor and general academic policies on such issues as diversity, religious observance, student disabilities, etc.

Schedule:

<u>Date</u>	<u>Assignment and Quiz on</u>
Jan 10	Read over the syllabus. 1) Select the "Course Orientation Assignment" (under "Course Orientation" on the front page). Follow the instructions. These including taking the "Orientation quiz" 2) Post any questions regarding the syllabus or course procedure to the "Syllabus/Procedural Questions" discussion board. 3) Take the "Orientation Quiz".
Theory and Evidence	
Jan 17	Chapter 1: Introduction
Jan 24	Chapter 2: Logic Plus Empiricism
Jan 31	Chapter 3: Induction and Confirmation
Feb 7	Chapter 4: Popper: Conjecture and Refutation
Scientific Change and the Social Structure of Science	
Feb 14	Chapters 5: Kuhn and Normal Science
Feb 21	Chapters 6: Kuhn and Revolutions
Mar 7	Chapter 7: Lakatos, Laudan, Feyerabend and Frameworks
Mar 14	Chapter 8: The Challenge from Sociology of Science
March 21	Chapter 9: Feminism and Science Studies
Metaphysical Issues in Science	
March 28	Chapter 10: Naturalistic Philosophy...
Apr 4	Chapter 11: Naturalism and the Social Structure of Science
Apr 11	Chapter 12: Scientific Realism
Apr 18	Chapter 13: Explanation
Apr 25	Chapter 15: Empiricism, Naturalism and Scientific Realism.