

Philosophy of Science (3cr)
Phil 350 (07643) [H]
Spring 2014

Instructor: Michael Goldsby
(michael.goldsby@wsu.edu)

Office: 824 Johnson Tower
Office Hours: 2-3 Tu-Th, or by appointment
Phone: (509) 335-0942

Lecture Times:

9:10-10:25 am Tuesday, Thursday

TA: Daniel Mueller
(daniel.mueller@email.wsu.edu)

Office: 226 Johnson Tower
Office Hours: 12-1pm M,W,
or by appointment

Location:

9 Sloan Hall

Required Materials:

- (1) **C&C:** *Philosophy of Science: The Central Issues*. Curd and Cover (eds).
- (2) **ER:** Readings on Electronic Reserve.
- (3) Top Hat Subscription (<https://tophat.com>)

The text (1) is available at the Barnes and Noble at the CUB. Electronic Readings (2) will be posted on Angel. You can purchase a Top Hat subscription (3) at <https://tophat.com>. Top Hat allows you to interact with the class electronically. You need not buy any special equipment, as Top Hat will work with laptops, tablets, smart phones, 'dumb' phones with texting capability, etc. If you do not have any of these devices please talk to me and we will make alternative arrangements.

Course Description and Goals:

The goal of this course is to familiarize you with the core issues and puzzles in contemporary philosophy of science. Science is one of the greatest knowledge producing disciplines. Philosophy of science seeks to understand how science works. What makes something a science? Must it be falsifiable and objective? What role do values play in science? Do the data uniquely determine what theory is best? How do we go about gathering evidence and how does that evidence confirm or disconfirm our theories? What are the attainable goals of science? Do we need the special sciences or will physics be sufficient? These are some of the broad questions that we will explore over the course of this semester. **One goal of this course is to provide you with the means to think more clearly about these difficult issues, which I will demonstrate by exploring some of them, and you will be assessed on how well you develop your ideas.** Another goal of this course is **to familiarize you with the philosophical underpinnings of the scientific method, which should help to advance your scientific literacy.** Additionally, **you will learn to articulate your views and defend them with evidence and argument, which will be assessed in your written assignments along with your ability to think deeply.** (University Learning Goals: Critical Thinking; Information Literacy; Scientific Literacy; Communication)

Course Requirements:

Your grade in this class will be determined by several factors: (a) your performance on the midterm and final exams; (b) the successful completion of the logic and annotated bibliography exercises; (c) the merits of your work on the writing assignments; and (d) your participation in the class. These factors are weighted as indicated below:

Writing Assignment 1	20%
Midterm Exam	20%
Writing Assignment 2	20%
Final Exam	30%
Participation	10%

1. *Exams* – You will have only two exams in this course: a midterm and a final. The format of both exams will be the same (although the content will be different). The **midterm exam** is tentatively scheduled for the **13th of March** during our regularly scheduled lecture time. “Final exams are scheduled the last week of the semester; the Registrar will send out an e-mail informing students of the day/time for your exam” (Office of the Vice Provost for Undergraduate Education 2013). No makeups for exams will be administered after the regularly scheduled exam time.
2. *Writing Assignments* – You will write two papers of about 3-5 double-spaced pages in length. The formatting of your papers should use 12 pt font and have 1” margins, and should consist of your own work. Plagiarism is taking someone else’s work and claiming that it is your own. When you submit a writing assignment, it is assumed that you are claiming that the work is your own. Thus, if you submit the work of another, you are plagiarizing. **Plagiarism is a serious academic offense, and it will not be tolerated. If it is determined that you have plagiarized, you will receive a failing grade for the course, in addition to any penalties mandated by the university.** More details about the writing assignments will be given when the papers are assigned. **See the tentative schedule for due dates.** Any assignment received after the class meeting, but before the following midnight will be considered **mildly late** and will receive a **three point penalty (out of 100)**. Assignments received after the midnight following the due date but before the next class meeting will be considered **extremely late** and will receive a **ten point penalty**. Assignments that have not been received prior to the next class meeting after the due date will be considered **atrociously late. Atrociously late assignments will not be accepted.** Assignments that are not accepted or not completed will receive a **zero**.
3. *Participation* – I will be keeping track of your attendance, preparedness, engagement, effort, and attitude. One method that I will use to monitor your participation is the Top Hat system, which will allow even the shyest person to interact with the class electronically. Everyday in class, you will have some opportunity to participate in at least one question. Top Hat will automatically keep track of your participation by awarding you participation points every time you answer one of the questions presented in class. Additionally, with some questions, you may be able to earn correctness points. Your participation grade will be a function of the total possible participation points and the participation and correctness points that you earn. Furthermore, those who’ve had exemplary participation according to the standards just mentioned are more likely to be

granted the higher grade should their average fall in a swing grade range. Additionally, anyone who maintains perfect attendance and comes to my office hours at least once during the semester will receive a bonus of two points to their final grade.

You will receive a numerical score (0-100) based on weighted average that corresponds to the breakdown indicated above. I will use that score to assign you a letter grade according to the following scale:

A	93-100
A-/B+	88-92
B	83-87
B-/C+	78-82
C	70-77
D	60-69
F	< 60

You will note that there are some swing grades (e.g. between A and A- (92-93)). If you receive a final score that is such a swing grade, then your letter grade will be determined by two factors: (1) how close you are to one score or the other (e.g. 92.75 is closer to 93 than 92.25); and (2) how well you've participated in class.

Guidelines and Policies:

Attendance – Attendance is mandatory. Failure to attend lecture will impact your grade both directly and indirectly. First of all, it is very difficult to participate if you do not attend lectures, and thus absences will have an effect on your participation grade. Additionally, much of the material in this class might be new to you – not to mention difficult – meaning that your likelihood of success will decrease with every absence.

Lecture – Our time together is very precious, and as such, I expect you to attend the lectures having read the assigned readings and generally ready to learn. This also means that during class time there should be nothing on your desk that is not required for class (e.g. no newspapers, books from other classes, etc.). All cell phones should be silenced. Laptops and tablets may be used for note-taking if you wish. Also you may use any compatible device to access the Top Hat system, but you should not be checking email, tweeting, texting to friends, facebooking or doing anything else distracting while in lecture. Transgressions may result in a penalty to your participation grade.

Communications Policy – The best way to get in touch with me is via email. I have my phone number listed above, and you are welcome to give me a call. However, you are much more likely to get a response or acknowledgment via email. I check my email frequently, and I will generally make every effort to respond to your emails in a timely manner (usually within a couple of hours). However, there might be rare cases during the semester when it takes up to 48 hours for me to do so. Thus, you should plan accordingly, if there is a time constraint that you are worried about.

Respect in the Classroom – Over the course of the semester, we may discuss some very sensitive issues – ones that may cause your blood to boil. I think J.S. Mill said it best when he said, “there is nothing that offends no one, and no one who is offended by nothing.” It is possible that you may leave lecture very upset about the day’s discussion – good! I hope that I challenge you to think about issues of such import that they would make us angry, sad and wanting to make a change in our lives or the world. However, I expect everyone to treat every other member of this class with the highest degree of respect. Acting otherwise will result in dire consequences for the transgressors.

Academic Integrity – I expect all of you to hold yourselves to the highest standards of academic integrity in this class. The Standards of Student Conduct defines plagiarism as “Presenting the information, ideas, or phrasing of another person as the student's own work without proper acknowledgment of the source. This includes submitting a commercially prepared paper or research project or submitting for academic credit any work done by someone else. The term "plagiarism" includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials” WAC 504-26-010 (3-i). **Plagiarism or any other breach of academic integrity will not be tolerated. Any such violation will result in a failing grade for the course. Additionally, I will provide a written report of each instance of academic dishonesty to the Office of Student Standards and Accountability.**

Special Arrangements – Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit the Access Center. All accommodations MUST be

approved through the Access Center. Please stop by or call 509-335-3417 to make an appointment with a disability specialist. Also if you do have approved accommodations please let me know by the second week of class.

Safety Statement - "Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (<http://safetyplan.wsu.edu/>) and visit the Office of Emergency Management web site (<http://oem.wsu.edu/>) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community" (Office of the Vice Provost for Undergraduate Education 2013).

Problem Solving - I'm certain that during the course of this semester you will have questions and problems- both ones that have to do with the class material and ones that have to do with the everyday mechanics of the class. You should feel free to get a hold of me (or your TA) to help you answer these questions, and if we put our heads together most problems can be resolved. I am available for you during office hours, by appointment, and by email (which I check often). Take advantage of this fact! You should treat your instructors (including me) as a resource to aid you in your learning; this is, after all, your education. Additionally, if you do need such help, the earlier you let me know the better. I have more options available to help you earlier in the semester than later.

***I reserve the right to change the contents of this syllabus at any time during the semester.**

Tentative Schedule

The following schedule is subject to change.

Week	Topic	Readings	Exams and Assignments
1 13-17 Jan	Introduction, Demarcation	Popper (C&C: 1-11) Kuhn (C&C: 11-20) Lakatos (C&C: 20-27)	
2 20-24 Jan	Demarcation (cont) Rationality in Science	Popper (C&C: 1-11) Kuhn (C&C: 11-20) Lakatos (C&C: 20-27) Hempel 1 (ER) Kuhn (C&C: 79-111) McMullin (111-131) Laudan (131-144)	
3 27-31 Jan	Rationality/ Values in Science	Kuhn (C&C: 79-111) McMullin (111-131) Laudan (131-144) Longino (C&C: 144-165) Okruhlik (C&C: 165-183) Lloyd (ER)	
4 3-7 Feb	Duhem-Quine Thesis	Duhem (C&C 225-250) Quine (C&C 250-271) Gillies (C&C 271-288) Laudan (C&C 288-321) Howson & Urbach (C&C 321-333) Suggested Reading: (Goldsby (ER))	Written Assignment 1 Assigned
5 10-14 Feb	Induction and Prediction	Lipton (C&C 387-406) Popper (C&C 406 – 412) Salmon (C&C 412-424)	
6 17-21 Feb	Prediction and Evidence	Hempel (C&C 424-439) Hempel 2 (ER) Goodman (451-457) Hempel 3 (ER) Titelbaum (ER) Suggested Reading: (C&C 457-515)	Written Assignment 1 Due Thursday the 20 th of February
7 24-28 Feb	Confirmation and Bayesianism	Bayesian Primer (ER)	
8 3-7 Mar	Confirmation and Bayesianism (cont)	Salmon (C&C 518-550) Mayo (C&C 550-565) Chalmers (C&C 565-579) Horwich (C&C 579-597)	

9 10-14 Mar	Confirmation (cont)	No new readings	Mid-term Thursday 13 Mar 2014!
10 17-21 Mar	Spring Break	(Consider getting ahead on the reading)	Try to recharge, and stay safe!
11 24-28 Mar	Explanation	Hempel (C&C 657-691) Kitcher (C&C 711-735)	Written Assignment 2 assigned
12 31 Mar- 4 Apr	Explanation (cont)	Woodward(C&C 735-754)	
	Laws	Carnap (C&C 651-657)	
13 7-11 Apr	Laws (cont)	Dretske (C&C 833-853) Cartwright (C&C 871-885)	
	Reductionism	Nagel (C&C 911-927)	
14 14-18 Apr	Reductionism (cont)	Fodor (954-970) Kitcher (970-1003) Petit and Jackson (ER)	Written Assignment 2 is due Thursday the 17 th of April.
15 21-25 Apr	Realism and Empiricism	Maxwell (1049-60) van Fraassen (1060-83) Musgrave (1083-1108)	
16 28 Apr- 2 May	Wrap up and exam	Carnap (ER)	