

**Philosophy of Science (3cr)**  
Phil 350 (07643) [H]  
**Spring 2015**

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**Lecture Times:**

9:10-10:25 am Tuesdays, Thursdays

**Location:**

7 Sloan Hall

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**Required Materials:**

- (1) **KR:** *Scientific Inquiry: Readings in the Philosophy of Science*. Edited by Robert Klee.
- (2) **VSI:** *Philosophy of Science: A Very Short Introduction*. Samir Okasha.
- (3) **ER:** Readings on Electronic Reserve.

Texts (1) and (2) are available at the Barnes and Noble at the CUB. They can be purchased as a bundle in which you will receive (2) free of charge. Electronic Readings (3) will be posted on Blackboard (the new learning management system that replaces Angel found at <https://learn.wsu.edu>).

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**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 them.** Another goal of this course is **to familiarize you with the philosophical underpinnings of the scientific method, which should help your scientific literacy.** Additionally, **you will learn to articulate your views and defend them with evidence and argument. Your progress toward these goals will be assessed by how well you consider these topics in classroom discussions, the quality of your written assignments, as well as your performance on the midterm.**

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**Course Requirements:**

Your grade in this class will be determined by several factors: (a) the merits of your work on the writing assignments; (b) your performance on the midterm; (c) the demonstrated effort that you put into the box project; and (d) your participation in the class. These factors are weighted as indicated below:

Writing Assignment 1	20%
Midterm Exam	25%
Writing Assignment 2	25%
Box Project	20%
Participation	10%

1. *Writing Assignments* – You will write two papers of about 3-5 double-spaced pages in length. The first will determine 20% of your grade, and the second will determine 25%. 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 zero for that assignment, 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 when it was due, but before the following midnight will be considered **mildly late**. Mildly late papers will receive a **3 point penalty**. Assignments received after the midnight following the due date, but before the next class meeting will be considered **extremely late**. Extremely late papers 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**. ***I do not accept any atrociously late papers – that means that atrociously late papers will receive a zero.***
2. *The Midterm Exam* – You will have only one exam in this course: the midterm. The midterm exam is tentatively scheduled for the **12<sup>th</sup> of March** during our regularly scheduled lecture time. No makeups for exams will be administered after the regularly scheduled exam time.
3. *The Box Project* – The box project is a group project that you will work on over the course of the semester. The class will be divided into 4-6 groups (depending upon the overall class size). Each group will compete against the other groups for glory and a non-grade related prize. However, your grade will be determined by your demonstrated effort in the group and by how well your group presents their findings. It is possible to achieve a perfect score for the box project and fail to win, and conversely it is possible to win and fail to achieve a perfect score. We will hold box project presentations during dead week. Additionally, your group will be responsible for writing a final report. That report will be due Monday of exam week. See the Box Project Instructions for further information.
4. *Participation* – One of the best ways to learn philosophy is to actively engage with the material. One of the best ways to actively engage with material is to participate in class discussion. I will be keeping track of how well each of you meets this goal. I know that some of you might be shy, or worried about saying something false. If the thought of speaking up in class terrifies you, you can always stop by my office during office hours to talk about the week’s readings. We will all probably say something false throughout the semester, but we should not let that get in the way of our engagement with the material.

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	72-77
C-/D+	68-72
D	60-67
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.

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### **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.**

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### Tentative Schedule

The following schedule is subject to change.

Date	Topic	Text Book Readings	Additional Readings/ Assignments
13 Jan	Introduction		Syllabus and Box Project assignment
15 Jan	Demarcation	<b>VSI:</b> Chapter 1 <b>KR:</b> 65-72	
20 Jan	Logical Positivism	<b>KR:</b> 7-29	<b>ER:</b> Lakatos
22 Jan		<b>KR:</b> 30-54	<b>ER:</b> Hempel 1
27 Jan	The Historical Turn	<b>VSI:</b> Chapter 5	
29 Jan		<b>KR:</b> 199-215	<b>ER:</b> Lakatos
3 Feb	Social Constructivism	<b>VSI:</b> Chapter 7 <b>KR:</b> 241-250; 265-273	<b>ER:</b> Sokal (optional)
5 Feb	Feminist Critique	<b>KR:</b> 274-305	
10 Feb	Values in Science		<b>ER:</b> Longino <b>ER:</b> Okruhlik
12 Feb	Duhem-Quine	<b>KR:</b> 55-75	<b>ER:</b> Ariew, Goldsby (Optional)
17 Feb	Underdetermination	<b>KR:</b> 83-99	
19 Feb	Scientific Reasoning	<b>VSI:</b> Chapter 2	<b>Written Assignment 1 Due 19<sup>th</sup> of February</b>
24 Feb	Induction and Prediction		<b>ER:</b> Lipton; Popper; Goodman
26 Feb	Prediction and Evidence		<b>ER:</b> Hempel 2; Titelbaum
3 Mar	Confirmation and Bayesianism		<b>ER:</b> Bayesian Primer
5 Mar			<b>ER:</b> Sober 1; Glymour
10 Mar	Confirmation, Testability and Bayesianism (Cont)		
12 Mar			<b>Midterm 12<sup>th</sup> of</b>

			<b>March</b>
16-20 Mar	Spring Break	(Consider getting ahead on the reading)	Try to recharge, and stay safe!
24 Mar	Explanation	<b>VSI:</b> Chapter 3 <b>KR:</b> 163-180	
26 Mar		<b>KR:</b> 181-189	
31 Mar	Explanation (cont)		<b>ER:</b> Woodward
2 Apr	Reductionism	<b>KR:</b> 101-130	
7 Apr	Reductionism	<b>KR:</b> 131-141	<b>ER:</b> Putnam
9 Apr			<b>ER:</b> Pettit and Jackson; Sober 2
14 Apr	Realism/Anti-Realism	<b>VSI:</b> Chapter 4 <b>KR:</b> 313-321	
16 Apr		<b>KR:</b> 322-337	
21 Apr	Particular problems	<b>VSI:</b> chapter 6	
23 Apr	Scientific Models and Baselines		<b>Written Assignment 2 due on the 23<sup>rd</sup> of April</b>
28 Apr	Box Project		
30 Apr			