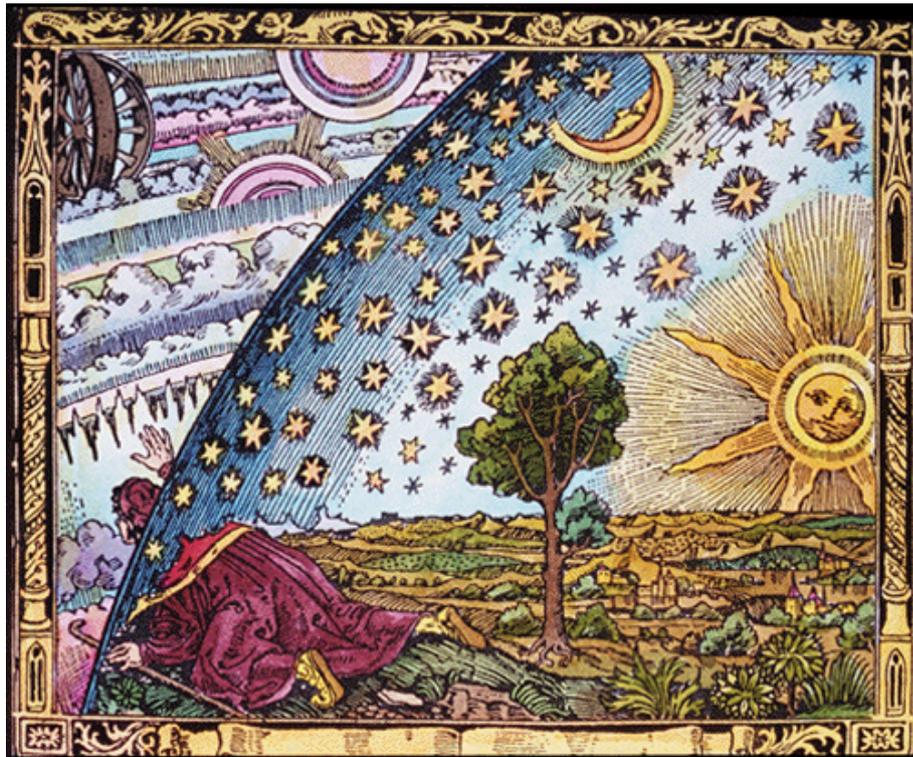


# PHIL 145

## PHILOSOPHY OF SCIENCE



**Spring 2016**

**Instructor:** Kerry McKenzie

kmckenzie@ucsd.edu

**Classes:** WLH 2209, TuTh 3.30-4.50pm.

**Office:** HSS 8088      **Office Hours:** Thursdays 10-12pm.

## SCHEDULE OF CLASSES

<i>Wk: Date</i>	<i>Topic</i>
1: 03/29	1. Introduction and Overview
1: 03/31	2. Inductive Argument and Inductivism (Chap 1)
2: 04/05	3. The Problem of Induction (Chap 2)
2: 04/07	4. Introducing Unobservables (Earman and Salmon)
3: 04/12	5. The Duhem-Quine problem (6.1.3 plus Duhem excerpt)
3: 04/14	6. Underdetermination of Theory by Data (Chap 6 to Sec 6.2)
4: 04/19	7. Virtues of Theories (Chap 7 up to 7.2.2)
4: 04/21	8. Introduction to Science and Values (Okruhlik / optional Longino)
5: 04/26	9. Science and Values cont'd.
5: 04/28	10. Essay Exchange / Discussion / Trouble shooting
6: 05/03	11. Introduction to Science vs Pseudoscience / <b>Paper due</b>
6: 05/05	12. Defining Science I: Popper (Chap 3)
7: 05/10	13. Defining Science II: Kuhn (Chap 4)
7: 05/12	14. Defining Science III: Lakatos, 'Science and Pseudoscience' / Laudan
8: 05/17	15. Problems of Progress 1: Verisimilitude (Newton-Smith / Popper, 'Conjectures' excerpt)
8: 05/19	16. Problems of Progress 2: Theory-change (Worrall; Kuhn, 'Progress Through Revolutions')
9: 05/24	17. Introducing Laws of Nature (Bird)
9: 05/26	18. Humean Best System Analyses (Beebee)
10: 05/31	19. Necessitarian Analyses (please ask if extra reading needed).
10: 06/02	20. Envoi
11: 06/06	<b>Exam.</b>

*Exam Monday 6th June, 3-5.59pm.*

# 1 Objectives, methods, requirements

## 1.1 What this course is about

This course concerns a topic of great social, philosophical, and personal significance: the nature and justification of scientific knowledge. In it, we will look at a range of topics including: the nature of scientific justification; whether science can be regarded as rational or value-free; how we acquire knowledge of unobservable entities, such as quarks and electrons; how explanation in science works; whether scientific theories can be regarded as true; what laws of nature are; and what science is in the first place.

## 1.2 Objectives

On completion of this module students should be able to critically discuss a variety of issues concerning the justification of scientific claims, such as the problem of induction, underdetermination, and appeal to explanatory virtues; the chief arguments concerning realism and anti-realism in science; and the central disputes in the interpretation of laws of nature.

## 1.3 Assessment

There are three parts to your assessment.

- Five short in-class quizzes, each worth 3%.
- Thursday May 5th: paper of between 1,500 and 2,000 words (40%).
- 3pm, Monday 6th June: exam (45%).

**Quizzes.** These will be easy tests on previously assigned reading and will not be announced ahead of time. If – but only if – by the final class, 80% or greater have filled out the CAPE, then I will give everyone 3/3 in lieu of an eighth homework or quiz.

**Exam.** Ahead of time, you will be given six questions to think about, of which three will be chosen for the exam. You will write essays on two.

**Paper.** Your paper should be between 1,500 and 2,000 words long and should be submitted in class on Tuesday 5th May. In class we will discuss the sort of thing I'm looking for you in your term paper and mini exam essays. But in grading your essay I will be looking for three things, weighted roughly equally:

**Comprehension:** understanding of the concepts and ideas discussed in the essay.

**Clarity:** presentation of the ideas and concepts in a clear and concise manner.

**Engagement:** independent thinking about the items under discussion.

You must submit both a hard copy of your paper to me in class as well as submit it through Turnitin, via a link on TED. I reserve the right to ask you a few questions in person about your essay before administering a grade.

**Grading scale.** Your TAs will be assigning letter grades for your exam and term paper corresponding to these marks:

$97 - 100 = A^+$	$87 - 89 = B^+$	$77 - 79 = C^+$	$67 - 69 = D^+$
$93 - 96 = A$	$83 - 86 = B$	$73 - 76 = C$	$60 - 66 = D$
$90 - 92 = A^-$	$80 - 82 = B^-$	$70 - 72 = C^-$	$< 60 = F$

The final letter grade you receive however will be ‘graded to the curve’, so that the top 20-30% of students will get a grade in the A range, the next 25-35% a grade in the B range, the next 25-30% a grade in the C range, and the remaining 5-25% a D or an F. This is the minimum I guarantee; if the class has worked well and no-one deserves a D or an F, the curve will be adjusted accordingly.

### **Academic Integrity.**

UCSD is committed to academic integrity. According to their *Policy on Integrity of Scholarship*,<sup>1</sup>

“Integrity of scholarship is essential for an academic community. The University expects that both faculty and students will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all academic work will be done by the individual to whom it is assigned, without unauthorized aid of any kind.”

If you are unsure in any way of what acting with integrity demands of you in this context, I’ll be happy to discuss it with you.

**Set reading.** Our coursebook will be *Understanding Philosophy of Science* by James Ladyman. I will be supplementing this book with material, especially as we go through the course. All additional material will be available through TED. Please note that we are omitting certain portions of the book; this inevitably leads to certain concepts in the later portions that we do cover being employed without there being defined. You can find a glossary of many terms at the back of the book, but please do not hesitate to raise in class anything in the reading that was unclear to you. (It will be helpful for me too.)

**Office hours.** I run office hours in H&SS 8088, Thursdays 10-12. Please view office hour as another resource available to you. If my schedule OH time does not suit your schedule, don’t hesitate to get in touch to try and arrange a time that does.

---

<sup>1</sup>For the full statement, go to <https://students.ucsd.edu/academics/academic-integrity/policy.html>