

# Contemporary Philosophy of Science

Fall | 2021

## Instructor Information

### Instructor

Kino Zhao (she/her)  
kinoucla@g.ucla.edu

### Class time & location

Tu/Th 2pm-3:15pm  
DODD 175

### Office hours & location

Tu/Th 3:30-4:30, DODD 351  
Also by appointments and via Zoom

## General Information

### Course Description

Why study philosophy of science when one can study science? What do philosophers have to say about science anyway? And why does it matter? This class does not answer these questions. Instead, we look at what philosophers of science talk about and arrive at our own answers. Maybe you will decide that philosophers have nothing interesting to say about science that scientists have not already said. Maybe you will decide that philosophy of science constitutes a crucial and healthy part of science. We will see.

As the title of the class suggests, we will be talking about *contemporary* philosophy of science, rather than old ones. One characteristic of contemporary philosophy of science is that it is not very systematic, partly because not enough time has passed for historians to systematize it, partly also because of a methodological shift towards naturalism and practice-first philosophy. Consequently, instead of providing you with a system of knowledge, we will survey 5 topics contemporary philosophers of science care about.

### Class Structure

There are 4 independent units, each containing 4 lectures. We will read 2 papers per unit (1 per week) that are in dialogue with each other, though some more directly than others.

[Lecture 1] Background overview. There will be *no required reading* for this part.

[Lecture 2] First paper. [Required Reading] [Discussion Question] (more on DQs under Assessment)

[Lecture 3] Second paper. [Required Reading] [Discussion Question]

[Lecture 4] Epilogue. There will be *no required reading* for this part. Instead, we'll hold a class discussion on the topics based on the earlier DQs you've submitted.

Since the units are independent of each other, if you fall behind at any point, the best thing to do is to skip that unit altogether and focus on the next one. More on falling behind under Policies.

Accounting for the two holidays (yes we'll do real holidays this quarter), there are 2 classes left at the end. The reading for that week will be students' choice, for which you will need to write a summary and reflection piece for grade (see Assessment).

### Reading

All papers will be posted on CCLE.

## Assessment

### Discussion Questions (3% x 6 = 18% of total grade)

Philosophy happens in discussions, and discussions are as good as the quality of questions people raise. Contrary to popular belief, asking and responding to philosophical questions are skills one can improve through practice.

The last lecture of each unit will be reserved for discussions, the topics of which dictated by questions you submit for the readings.

Every lecture day when there is required reading, **upload at least 1 question you have while reading the text on CCLE, under a thread which I will start for that week.** You can upload as many questions you have, but preferably fewer than 10.

I will use these questions as starting points for Lecture 4 discussions, which might involve calling your name and asking you to elaborate on your question. *If you really would rather not be called upon, please let me know.*

**Credits are assigned on completion.** Notice also that you only need 6 questions to get the full grade.

What to do if you have the same question as someone else? A few things. If you already have an articulation of the question, you can ask it anyway. You don't have to look through all previous questions to make sure yours is unique, but if you did look them through and found one similar, start a sub-thread with something like "I had the same question. [insert your articulation]". We may find out that you don't actually have the same question.

If you have not articulated your question, but you read someone else's question and think "that's such a good way to put it", then write that under their question. It's a service to philosophy if we all learn to give each other credit and approval. If you can say more about why a question is good, that counts as your discussion credit. (Simply saying "it's a good question" is not enough for credit, though.)

#### **Four-sentence philosophy essay (12% of total grade)**

Pick a paper we've read, write four sentences that: (1) identify the main argument that the author defends; (2) respond to the author's main argument by articulating your position in the "debate"; (3) anticipate a possible objection to your position; (4) respond to the possible objection.

If you have trouble structuring the four sentences, you can use the following template:

1. [The author] says \_\_\_\_.
2. I say \_\_\_\_, because \_\_\_\_.
3. One might object that \_\_\_\_.
4. I would reply that \_\_\_\_.

There is no word limit for this writing assignment, but your essay cannot exceed 4 sentences.

#### **Full essay (10%+40% = 50% of total grade)**

Edition 1 (<6 pages): choose a topic (unit), summarize the papers we've read, and defend a thesis of your own. You may choose to expand your four-sentence essay if you want, or you may write on something completely different.

Note: If you miss the deadline for this, you will not be able to participate in the Revision phase and lose the associated 10%. You can still submit paper for the final grade.

Revision (1 weeks, 10%): each of you will read 2 papers from your classmates and give some comments on them. You receive 10% as long as you submitted comments on time.

Edition 2 (<8 pages, 40%): you can (though don't have to) make changes based on feedback you received from 2 of your classmates as well as from me.

#### **Special topic summary and reflection (20% of total grade)**

In 2-3 pages, briefly summarize your chosen topic or reading, together with your own reflections on the material. Did anything surprise you? Does anything relate to your background knowledge in other fields? Etc. Grades are assigned based on the accuracy of the summary part.

## **Policies**

### **Covid-19: masks mandatory; lectures recorded**

Masks are required to attend lectures.

If you feel sick, DON'T COME TO CLASS! This should be true in general but is definitely true now. If you suspect you might be exposed, or if you have serious health concern about either yourself or someone you live with, feel free to stay home. I plan to record at least the audio part of all my lectures. You can always set up Zoom meetings with me to go over stuff.

### **Life happens**

These are difficult times. If things come up that would impede your ability to function in this class, **let me know**.

You don't have to tell me what happened; you don't have to provide proof (in most cases). All you need to do is describe, to the best of your ability, what level of obstacle you are facing. E.g., perhaps you can't keep up with the schedule for a couple of weeks; perhaps you can watch videos but not think straight enough to write essays; perhaps you need to be completely out indefinitely. Let me know and we can figure out what type of accommodation makes the most sense.

## **Course Schedule**

### **Week 0**

Sept 23. syllabus, course plan, logistics, all the fun stuff

### **Unit 1 – Scientific realism vs. anti-realism**

Sept 28. – Background

Sept 30. – Reading: Markus Eronen, “Robustness and reality”

Oct 5. – Reading: P, Kyle Stanford, “Unconceived alternatives and conservatism in science”

Oct 7. – epilogue

### **Unit 2 – Simulation vs. experiment**

Oct 12. – Background

Oct 14. – Reading: Emily Parke, “Experiments, Simulations, and Epistemic Privilege”

Oct 19. – Reading: Sherrilyn Roush, “The epistemic superiority of experiment to simulation”

Oct 21. – epilogue

### **Unit 3 – Values in science**

Oct 26. – Background

**Four-sentence philosophy essay due**

Oct 28. – Reading: Heather Douglas, “Inductive Risk and Values in Science”

Nov 2. – Reading: Liam Kofi Bright, “Du Bois’ democratic defence of the value free ideal”

Nov 4. – epilogue

### **Unit 4 – Methodology in philosophy of science (aka the holiday unit; aka the essay unit)**

Nov 9. – Background

**Full essay edition 1 due**

Nov 11 – veteran's day – no class

Essay 1 revision sent out

Nov 16. – Reading: Chris Mitsch, “History Can't Save Aimless Philosophy of Science”

Nov 18. – Reading: Adrian Currie, “Philosophy of Science & the Curse of the Case Study”

**DQ for this reading is due on the following Monday (Nov 22) instead**

**Full essay comments due**

Nov 23. – epilogue

Nov 25. Thanksgiving – no class

**Special topics**

Nov 30. – probably a guest lecture. Topics TBD

**Full essay final edition due**

Dec 2. – class discussion; share preliminary thoughts on special topics; class conclusion

Choose 1 topic below to read for your special topics summary and reflection:

1. Philosophy about climate science  
Eric Winsberg, Naomi Oreskes, Elisabeth Lloyd, “Severe Weather Event Attribution: Why Values Won’t Go Away”
2. Philosophy about paleontology  
Margaret Greta Turnbull, “Dinosaurs and Reasonable Disagreement”
3. Evidence-based medicine:  
Maya Goldenberg, “On evidence and evidence-based medicine: Lessons from the philosophy of science”
4. Dynamics of the scientific community  
Hannah Rubin & Mike Schneider, “Priority and Privilege in Scientific Discovery”
5. Philosophy of cosmology  
Siska De Baerdemaeker & Nora Mills Boyd, “Jump ship, shift gears, or just keep on chugging: Assessing the responses to tensions between theory and evidence in contemporary cosmology”

**Final’s week**

**Unit 5 summary and reflection due: noon Dec 8**

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**Last updated Sept, 2021**