**Values in Science**

Semester | year

# Instructor Information

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| Instructor | Email | Office Location & Hours |
| **Kino Zhao** | yutingz3@uci.edu | Location, Time, Day |

# General Information

## Course Description

## There is a view of scientists as objective, dispassionate observers of nature, who care only for hard facts and evidence. Science, it is thought, should be free of socio-political influences. This class introduces a recent discussion within the philosophy of science on whether science can or should be “value-free”.

In this class, we will primarily read philosophers who have argued against the value-freeness of science (my assumption is that most students will come into the class with intuitions closer to the value-free view). These philosophers don’t always agree as to in what manner and to what extent values are supposed to influence science. We will look at some of these disputes. We will also look at some defenders of value-freeness towards the end of the course.

Students are not expected to have previously taken philosophy classes, though that would certainly help. If you have no prior knowledge in philosophy of science, the first 3 weeks might be a little harder to navigate. It’s very common for people to have trouble grasping philosophical readings the first time they encounter them. Come talk to me early so we can make sure your later weeks run smoother.

## Reading

All readings will be uploaded on Canvas (except for the SEP article, which is publicly available online). Students should aim to at least skim through the assigned readings before class. A weekly reading discussion question is required for attendance grade (explained in more detail below).

Most of the readings in this class are contemporary, which means they are easier to read. That said, they are still philosophy texts. If you get hang up somewhere in a paper, the best course of action is to skip it for now and come back later once we have discussed it in class.

While I strongly recommend that you read all of the text before class, I understand that it might not always happen. If you are really short on time, it is better to read one paper fully than half of two papers. While there are some continuations throughout the weeks, you don’t have to have “caught up” with all previous readings before you can understand the ones at hand.

Please bring the readings to class, either electronically on your laptop or as a paper copy.

# Assessment

## Weekly attendance questions (20% of grade)

Each week (except the first and last weeks), students are asked to submit a short question based on any of the readings assigned to that week. These questions will constitute the basis of our in-class discussion, conducted during the last hour of every seminar. Questions should be posted on Canvas the night before the class. Students are encouraged to comment on each other’s questions as well as asking follow-up ones.

A good philosophical question is short, direct, concrete, and specific. Throughout the semester, we will work on sharpening our questions to be as concise as possible.

## Short paper (40% of grade)

A 5-10-page paper, due in week 10. (Instructions attached separately)

Suggested work timeline:

Week 6-7 – think about what you want to write & talk to me about your thesis if you are unsure.

Week 8-9 – finish a draft. Doesn’t have to be a good draft; just a complete draft.

Week 10 – put your draft aside for a week and then come back to it. Read and edit it.

## Group presentation (40% of grade)

A group presentation to be given in week 13. (Instructions attached separately)

Suggested work timeline:

Week 4 – first meeting with group member to come up with a small set (3-4) of possible topics.

Week 6 – meet again to decide on a topic and allocate tasks.

Week 8 – preliminary progress update; make adjustments if necessary; complain about paper writing.

Week 12 – finalize presentation content, order, etc.

# Policies

## Use of technology in class

Laptops are allowed in class. Please be mindful of what you do on your screen so as to not disturb others.

## Late submission of papers

The best way to ensure that you turn in projects on time is to start early. This gives you both time to edit your work and for unexpected sudden lack of motivation. If you anticipate submitting late, whether due to external circumstances or internal struggles, let me know as early as you can, and we’ll figure something out. If you have a chronic condition that affects your ability to work consistently, please also let me know and we can figure out workarounds.

[insert disability service center information]

# Course Schedule

## Week 1 – what is values in science?

Justin Biddle - State of the field: Transient underdetermination and values in science (2013)

## Week 2 – crash course on underdetermination problems

Larry Laudan & Jarrett Leplin - Empirical Equivalence and Underdetermination (1991)

Stanford, Kyle, "Underdetermination of Scientific Theory", The Stanford Encyclopedia of Philosophy, <https://plato.stanford.edu/archives/win2017/entries/scientific-underdetermination/>

## Week 3 – underdetermination

Thomas Kuhn - Objectivity, Value Judgment, and Theory Choice (1977)

Larry Laudan - The Epistemic, the Cognitive, and the Social (2004)

## Week 4 – inductive risk

Heather Douglas – Inductive Risk and Values in Science (2000)

Ernan McMullin – Values in Science (1982)

## Week 5 – cognitive vs. non-cognitive values (Skepticism)

Daniel McKaughan & Kevin Elliott - Introduction: Cognitive attitudes and values in science (2015)

Helen Longino - Cognitive and Non-cognitive values in science (1996)

Phyllis Rooney - On Values in Science- Is the Epistemic Non-Epistemic Distinction Useful (1992)

## Week 6 - cognitive vs. non-cognitive values (Defense)

Heather Douglas - the value of cognitive values (2013)

Daniel Steel - Epistemic Values and the Argument from Inductive Risk (2010)

## Week 7 - Direct vs. indirect roles of values

Kevin Elliott - Direct and Indirect Roles for Values in Science (2011)

Anke Bueter - The irreducibility of value-freedom to theory assessment (2014)

## Week 8 – diverse aims of science

Angela Potochnik - The diverse aims of science (2015)

Kevin Elliott & Daniel McKaughan - Non-Epistemic Values and the Multiple Goals of Science (2014)

## Week 9 – spotlight on biological science

Bert Baumgaertner & Wieteke Holthuijzen - On nonepistemic values in conservation biology (2017)

Kathleen Okruhlik - Gender and the Biological Sciences (1994)

## Week 10 – spotlight on climate science

Kristen Intemann - Distinguishing between legitimate and illegitimate values in climate modeling (2015)

William Goodwin - How does the Theologizing of Physics Contribute to Global Warming (2008)

## Week 11 – criticisms of values in science (general skepticism)

Noretta Koertge - Science, Values, and the Value of Science (2000)

Gregor Betz - In defence of the value free ideal (2013)

## Week 12 – criticisms of values in science (specific challenges)

Stephanie Ruphy - "Empiricism all the way down": a defense of the value-neutrality of science in response to Helen Longino's contextual empiricism (2006)

Torsten Wilholt - Bias and values in scientific research (2008)

## Week 13 – on the possibility of feminist science

Elizabeth Anderson, "Feminist Epistemology and Philosophy of Science", The Stanford Encyclopedia of Philosophy (Summer 2019 Edition), Edward N. Zalta (ed.), <https://plato.stanford.edu/entries/feminism-epistemology/>

Helen Longino. Can there be a feminist science? 1987, Hypatia 2(3): 51-64

## Week 14-15 – group presentation