# PHIL 5: Science and Human Understanding

Spring 2020
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Office Hours: Moses Hall 310, M/W 9:30-10:30

## Classes

- 3 lectures each week: M/W/F, 11-12, LeConte 2
- 1 section each week.

## Assessment

- Levels system: 50%
- Final paper: 35%
- Class participation: 15%

You will receive a letter grade for each component. Your final grade is calculated by converting each letter grade into a number, taking the average of those numbers (weighted by the percentages above), and converting the resulting number back into a letter grade, using the following schemes:

| Letter-to-number conversion | Number-to-letter conversion (boundaries are rounded upwards) |
|---|---|
| A = 95 | > 93.5 = A |
| A- = 92 | 90 – 93.5 = A- |
| B+ = 88 | 86.5 – 90 = B+ |
| B = 85 | 83.5 – 86.5 = B |
| B- = 82 | 80 – 83.5 = B- |
| C+ = 78 | 76.5 – 80 = C+ |
| C = 75 | 73.5 – 76.5 = C |
| C- = 72 | 70 – 73.5 = C- |
| Etc… | Etc… |
| F = 60 | < 60 = F |

## Materials

Students will need access to argument mapping software by Rationale at https://www.rationaleonline.com. Create an account with your Berkeley email address and purchase an "Education Basic" or "Education Extra" subscription. PHIL 5 students receive a discounted rate of $19 for Basic and $25 for Extra. You will receive an email from me with the code for this discount.

## Academic Integrity

Plagiarism is not tolerated and will be taken extremely seriously. "Turnitin" software will be used to check all assignments for possible plagiarism. That said, I strongly encourage you to discuss the material in this class with other students. It is fine to get feedback from other students on drafts of papers or argument maps. But your finished work must then be your own. This means that having talked about your draft with friends, you should sit down and revise your work yourself. For further guidance, please see the UC Berkeley statement on academic integrity: http://sa.berkeley.edu/conduct/integrity.

## Classroom climate

Discussion is an essential part of productive philosophical inquiry. Discussion can take many forms: you can propose your own idea, add support to someone else's idea, clarify it, distinguish it from related ideas, and so on. Discussion can also include criticism. Indeed, criticism can sharpen our ideas, deepen understanding, and reveal novel insights, so it is encouraged and expected. Still, *all discussion must be conducted with collegiality and civility*. This includes discussion in class, in section, and online. This is not always easy. There may be times when someone expresses an idea that strikes you as silly, immoral,

or offensive. If you wish to challenge the idea, be sure to target the idea itself rather than the person who expressed it. It is never appropriate to demean or denigrate fellow students or instructors. In addition, all students are expected to comply with the Student Code of Conduct: https://sa.berkeley.edu/code-of-conduct

**Disabled Students' Program**
If you require disability accommodations, please contact the campus DSP office at https://dsp.berkeley.edu and ask them to send me a letter of accommodation. Then, please come and talk with me as early as possible in the semester about what accommodations you may need for this class, even if you are not certain you will need them, so that we can make arrangements in advance. Accommodations requested at the last minute are not always possible to arrange.

**Graduate Student Instructors**
Graduate Student Instructors (GSIs) assist in various aspects of teaching here at Berkeley. Your GSI runs your weekly section and is available to talk during their office hours each week. Please note that your GSI is *not* expected to be available to talk outside their office-hour times, respond to involved philosophical questions by email (they will respond to administrative questions within 2 business days), or read and comment on drafts of your work prior to submission.

**Policy on Sexual Violence and Harassment**
Sexual violence and sexual harassment have no place in a learning environment. If you or someone you know experiences sexual violence or harassment, there are options, rights, and resources, including assistance with academics, reporting, and medical care. Visit survivorsupport.berkeley.edu or call the 24/7 Care Line at 510-643-2005.

**Course Overview**
Scientific progress over the past 400 years has transformed our understanding of the world around us and our place within it. But what exactly does scientific progress consist in? A widespread conception is that science delivers *objective, value-free knowledge about a wholly material world*. While popular within the scientific community, this conception has been challenged from at least two quarters. First, the idea that science has shown that the world is *wholly material* is rejected by certain theists who think there is evidence from within science itself that the universe was designed and created by a supernatural being. Second, the idea that science delivers *objective and value-free knowledge* is rejected by certain relativists who insist that science is infused with personal and cultural influences; that scientific theories are not a pure reflection of the world as it is in itself, but instead reflect something of our own biases and values. Much of this course will investigate these two challenges, and in doing so we will cover core themes from 20th century philosophy of science. (Disclosure: I don't agree with theists or relativists, but I do think their challenges are more serious than is often recognized!) Finally, we will use tools from the philosophy of science to examine a number of contemporary issues concerning one of the most transformative sciences of our time: artificial intelligence. For further details, please see the class-by-class schedule below

**Readings**
Readings marked ** are optional; all others are required. All readings will be available in PDF format through the bCourses site. You are expected to complete all readings assigned to each class by the time that class begins. If you find the readings difficult, that's fine—in fact, that is expected! But please try to get through the reading before class. Try to formulate what you don't understand as a succinct question. We will discuss the readings in class and there will be opportunities to ask questions.

## Topic 1: Is there a scientific explanation of our existence?

**Weds 22 Jan**
Class 1

**Introduction to argument mapping**

- Dasgupta, "A Brief Guide to Argument Mapping"

**Fri 24 Jan**
Class 2

**Why is there something rather than nothing?**

- Albert, "On the Origin of Everything"
- **Andersen, interview with Lawrence Krauss

**Mon 27 Jan**
Class 3

**Biological design I**

- Sober, "Creationism", pp. 27-42**Paley, selection from *Natural Theology*

**Weds 29 Jan**
Class 4

**Biological design II**

- Sober, "Creationism", pp. 42-57
- **Dawkins, *The God Delusion* chapter 4: "Why There Almost Certainly is No God", pp. 129-134.

**Fri 31 Jan**
Class 5

**Philosophy Lab: Biological design**

**Mon 3 Feb**
Class 6

**Fine-tuning I**

- Collins, "God, Design, and Fine-Tuning"
- Sober, "The Design Argument", pp. 126-127

**Weds 5 Feb**
Class 7

**Fine-tuning II**

- Sober, "The Design Argument", pp. 133-141
- **Dawkins, *The God Delusion* chapter 4: "Why There Almost Certainly is No God", pp. 141-151.

**Fri 7 Feb**
Class 8

**Philosophy Lab: Fine-tuning**

## Topic 2: Epistemology and metaphysics of science

**Mon 10 Feb**
Class 9

**Hume's problem of induction I**

- Salmon, "An Encounter with David Hume", pp. 245-257
- Feldman, "Skepticism", pp. 130-134

**Weds 12 Feb**
Class 10

**Hume's problem of induction II**

- Salmon, "An Encounter with David Hume", pp. 257-263
- Feldman, "Skepticism", pp. 135-139
- Harman, "Inference to the Best Explanation", pp. 88-91

**Fri 14 Feb**
Class 11

**Philosophy Lab: Hume's problem of induction**

**Mon 17 Feb**

**No class (academic holiday)**

**Weds 19 Feb**
Class 12

**Epistemic relativism I**

- Boghossian, *Fear of Knowledge* Chapter 5: "Epistemic Relativism Defended"
- Feldman, "Skepticism", pp. 139-141
- **Strawson, "The 'Justification' of Induction", pp. 256-263

**Fri 21 Feb**
Class 13

**Epistemic relativism II: The new riddle of induction**

- Goodman, "The New Riddle of Induction", pp. 72-83

**Mon 24 Feb**
Class 14

**Philosophy Lab: Epistemic relativism**

**Weds 26 Feb**
Class 15

**Natural kinds**

- Franklin-Hall, "Natural Kinds as Categorical Bottlenecks"

**Fri 28 Feb**
Class 16

**Scientific realism I**

- Van Fraassen, *The Scientific Image*, chapter 2: "Arguments Concerning Scientific Realism", pp. 6-19

**Mon 2 March**
Class 17

**Scientific realism II**

- Van Fraassen, *The Scientific Image*, chapter 2: "Arguments Concerning Scientific Realism", pp. 19-25

**Weds 4 March**
Class 18

**Philosophy Lab: Metaphysics of science**

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| **Fri 6 March** | **No class** |
| **Mon 9 March**<br>Class 19 | **Epistemic catastrophe I: Natural selection**<br>• Plantinga, *Warrant and Proper Function*, Chapter 12: "Is Naturalism Irrational?" |
| **Weds 11 March**<br>Class 20 | **Epistemic catastrophe II: Thermodynamics**<br>• Carroll, "Why Boltzmann Brains Are Bad", pp. 4-11 |
| **Fri 13 March**<br>Class 21 | **Philosophy Lab: Epistemic catastrophe** |

## Topic 3: Science, Values, and Society

**Mon 16 March** — **No class**

**Weds 18 March** — **No class**

**Fri 20 March**
Class 22

**The value-free ideal I**

- Kuhn, "Objectivity, Value-Judgment, and Theory Choice", pp. 356-364
- Lacy, *Is Science Value Free?* Chapter 1: "Introduction", pp. 1-12

**Mon 30 March**
Class 23

**The value-free ideal II**

- Longino, "Gender, Politics, and Theoretical Virtues"
- **Okruhlik, "Gender and the Biological Sciences", pp. 21-31

**Weds 1 April**
Class 24

**Science and democracy**

- Kitcher, *Science in a Democratic Society* Chapter 5: "Well-Ordered Science", pp. 105-125

**Fri 3 April**
Class 25

**Philosophy Lab: Science, values, and society**

## Topic 4: Philosophy of Artificial Intelligence

**Mon 6 April**
Class 26

**Mind-uploading and consciousness**
- Schneider, "Future Minds: Transhumanism, Cognitive Enhancement, and the Nature of Persons", pp. 1-4
- Chalmers, "The Singularity", pp. 33-40

**Weds 8 April**
Class 27

**The simulation argument**
- Bostrom, "Are You Living in a Computer Simulation?"
- **Pryor, "What's Wrong with Living in the Matrix?"

**Fri 10 April**
Class 28

**Philosophy lab: Consciousness and the simulation argument**

**Mon 13 April**
Class 29

**Mind-uploading and personal identity I**
- Chalmers, "The Singularity", pp. 40-46

**Weds 15 April**
Class 30

**Mind-uploading and personal identity II**
- Dennett, "Where Am I?"

**Fri 17 April**
Class 31

**Philosophy lab: Mind-uploading and personal identity**

**Mon 20 April**
Class 32

**Ethics of artificial intelligence I: Human-friendly AI**
- Chalmers, "The Singularity" pp. 22-33
- Bostrom and Yudkowski, "The Ethics of Artificial Intelligence" pp 1-6 and 14-18

**Weds 22 April**
Class 33

**Ethics of artificial intelligence II: Could machines have moral status?**
- Schwitzgebel and Garza, "A Defense of the Rights of Artificial Intelligences" pp. 98-103 and pp. 107-111
- **Bostrom and Yudkowsky, "The Ethics of Artificial Intelligence" pp. 6-9

**Fri 24 April**
Class 34

**Ethics of artificial intelligence III: Transparency and fairness**
- O'Neil, *Weapons of Math Destruction* Chapter 3: "Going to College

**Mon 27 April**
Class 35

**Philosophy lab: Ethics of artificial intelligence**

**Wed 29 April**

**No class**

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| **Fri 1 May** | **No class** |