PHILOS 128: PHILOSOPHY OF SCIENCE

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UC Berkeley, Fall 2023
Office hours: Mon, Tu 9–10am, Philosophy 243
Classes: Tu, Th 12.30–2pm, Social Sciences Building 56 and one section/week
GSI: Hannah DeBrine, office hours Tu 2:30–4:30, Philosophy 301

DESCRIPTION

Four closely connected concepts form the foundation of theorizing in science: *lawhood*, *probability*, *causation*, and *explanation*. But what exactly do these concepts refer to? What makes certain generalizations 'laws of nature', or certain outcomes 'probable'? What is it for one event to 'cause' another, or for one fact to 'explain' another? Considering how familiar and how important these concepts are, it is strange and sad that we don't know the answers to these questions. This course will consider some of the ongoing philosophical attempts to address this situation.

PREREQUISITES

You should have taken at least two philosophy classes.

READINGS

Readings range from historical classics to cutting-edge research. They will be available in pdf format on the bCourses site. There will typically be around 30–40 pages of reading per week (with some further reading optional). You should do the reading carefully before each class. I expect this to take you around 4–6 hours per week. This is an upper-level course, and most of the readings are somewhat difficult. It will help to read things a few times, and to take notes. Don't worry if there are points you don't understand: we will discuss the readings in class and there will be opportunities to ask questions.

ASSESSMENT

1. Participation (10%): attendance and participation in discussion sections; posts on three out of four discussion threads (see below).
2. Homeworks (30%): 3 homeworks, due in weeks 3, 6 and 12. Short questions.
3. Midterm Exam (30%): two short essays; in class on Thursday Oct 12 (wk 8).
4. Final paper (30%): 4 pages, choose from three questions, due Monday Dec 11.

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 rounded upwards)
A+ = 98	
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

COURSE POLICIES

Failure to turn in a take-home assignment on time will result in the lowering of your grade. For each day late, the grade will be lowered one letter grade (e.g., from a B to a B-). Extensions will be granted only in serious circumstances. Please do not hesitate to talk with me about these policies. I understand that people get sick, have family situations, etc. and I am willing to be quite accommodating. But you should make every effort to let me know ahead of time.

I discourage you from missing classes and discussion sections, not only because it will affect your participation grade but also because many topics discussed will be presupposed later on. If you need to miss a class, it is your responsibility to catch up on the material missed. Handouts are not intended to be substitutes for lectures and discussions. For recommendations about handling scheduling conflicts, see: teaching.berkeley.edu/checklist-scheduling-conflicts-academic-requirements

CLASSROOM CLIMATE

Discussion is essential to doing philosophy. It can take many forms: ideas can be proposed, developed, supported, clarified, and criticized. Criticism is important, but all discussion should be collaborative, not competitive. Listen carefully to what others have to say, and do not interrupt. If you're not following the discussion, please speak up — the chances are that others will be grateful for some clarification too. It is everyone's responsibility to maintain a fun, welcoming and inclusive class environment. There will be no tolerance for bullying, harassment, or disrespectful

behavior. In addition, all students are expected to comply with the Student Code of Conduct: https://sa.berkeley.edu/code-of-conduct.

Academic Integrity

I will not tolerate acts of academic dishonesty, including plagiarism or the use of unauthorized materials during exams. Any such act may result in a failing grade on the assignment or in the class, depending upon the severity of the case. Examples of academic dishonesty include copying material from an AI tool, website, or classmate and handing it in as your own, copying another student's work on an exam, quoting from or paraphrasing someone's work without proper citation.

Disabled Students' Program

UC Berkeley is committed to creating a learning environment that meets the needs of its diverse student body including students with disabilities. If you anticipate or experience any barriers to learning in this course, you are encouraged to discuss your concerns with me. If you have a disability or think you may have a disability, you can work with the Disabled Students' Program (DSP) to request an official accommodation letter. If I have a letter on file for you from the DSP office, you may assume that you have been granted the requested accommodations. You can find more information about DSP, including contact information and the application process, here: https://dsp.berkeley.edu.

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 bear in mind that your GSI is *not* expected to be available to talk outside their office hours, 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 Harrassment

Sexual violence and sexual harassment have no place in a learning environment. Therefore, in alignment with Title IX of the Education Amendments of 1972, it is the policy of the University of California (Sexual Harassment and Sexual Violence Policy) to prohibit sexual harassment, sexual assault, domestic/dating violence, and stalking. The UC Sexual Violence and Sexual Harassment Policy requires that the University immediately implement interim remedies and permanent support measures, when necessary, for victims/survivors. 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.

OVERVIEW OF SCHEDULE

A detailed schedule including the readings for each week is posted on the bCourses site and my website (www.ezrarubenstein.com). This schedule is provisional and may well be updated during the semester. I plan to set aside four discussion/review sessions (one per unit). As part of your participation credit, you are required to post questions/comments on the bCourses site discussion thread by 11.59pm the day before for *at least three* of these sessions.

Unit I: Laws

Week 1: Intro

Week 2: The Naïve Regularity Theory (*universal generalizations, law-likeness, accidental generalizations, the connections to counterfactuals and explanation*)

Week 3: The Best System Account I (*the Mill-Ramsey-Lewis view, Humean supervenience, simplicity, informativeness, the circularity problem, thought-experiments*)

Week 4: Non-Humean Theories & first discussion/review session (*the Armstrong-Dretske-Tooley view, primitivism, governing*)

Unit II: Probability

Week 5: Frequentism (*relative frequencies and limits, finite frequentism, hypothetical frequentism, the strong law of large numbers, the reference class problem*)

Week 6: The Best System Account II (*fit, the Big Bad Bug, the Principal Principle*)

Week 7: Propensities (*long run propensity, single case propensity, dispositional properties, Humphreys' paradox*)

Week 8: Second discussion/review session & midterm exam

Unit III: Causation

Week 9: Regularity Accounts (*constant conjunction, INUS conditions, covering laws*)

Week 10: Counterfactual Accounts (*counterfactual dependence, transitivity, pre-emption cases, influence*)

Week 11: Probabilistic accounts & third discussion/review session (*probability-raising, screening off, Simpson's paradox*)

Unit IV: Explanation

Week 12: The Deductive-Nomological Account (*entailment, nomic expectability, the problem of explanatory asymmetry, the problem of explanatory relevance*)

Week 13: The Unificationist Account (*abstraction, argument patterns, systematization*)

Week 14: The Causal Account ***Thanksgiving Nov 23*** (*causal history, difference-making, non-causal explanations in science*)

Week 15: Fourth discussion/review session

RRR week

--- Final paper due Monday Dec 11---