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Office Hours: MW 12–1 and by appt.
H&SS 8037

1 Course Description

In every subfield of contemporary philosophy, there are philosophers using formal tools to clarify puzzles and solve problems. For example: ethicists use formal methods from semantics to elucidate valid moral reasoning and formal methods from decision theory to precisify and solve puzzles for moral choices under uncertainty. Philosophers of mind use probability and decision theory to explain intentionality, model perception and perceptual belief, and explain belief-formation heuristics and biases. Philosophers of physics use probabilities and tools from formal epistemology to understand different kinds of stochastic processes, and to clarify puzzles for particular interpretations of quantum mechanics. And so on.

The objective of this course is to provide an introduction to some of those most widely used formal methods within philosophy, with a focus on:

- formal epistemology
- decision theory
- formal semantics for natural language

While some of the readings are intended as advanced introductions to their subject matters, many of the readings put these formal tools to work in cutting edge philosophy. This is meant to give a sense of why these tools are valuable, while also familiarizing you with some important recent debates in epistemology, decision theory, and philosophy of language.

2 Prerequisites

This course has no prerequisites. I will aim to presuppose as little as possible. I *strongly encourage* students to ask questions that they worry might be too basic. Students may come to this class with wildly different levels of familiarity with different formal tools. If you aren't shy about asking questions and risking seeming unimpressive, you will learn *much more*—and therefore be more impressive in the future. The only math we'll presuppose is multiplication and division.

3 Requirements

- (15%) **Weekly participation:** bring a question or two (or three or...) to every session of the class. Our discussion will be mainly organized around working through your questions. The more elementary (i.e. foundational!), the better.
- (25%) **Fortnightly problem sets:** The best way to learn how to use a formal tool is to practice using the tool yourself. You are permitted to collaborate with other students on problem sets, but your answers must be written independently (i.e. by yourself, based on your understanding of the

collaboration rather than other students' words), in your own words, in a way that demonstrates your own understanding. (If, for example, student *A* has written the answers and students *B* and *C* are typing up their answers while looking at *A*'s written answer, this is *not* a permissible form of collaboration.) This is obviously and unavoidably vague; use good judgment and when in doubt, ask. *If you collaborate with other students on any part of a problem set, you must cite those other students by name in that part of the problem set.*

- (60%) **Term paper(s):** *Noûs*-length final paper or two or three *Analysis*-length papers. *Phil. Review*-length papers are permitted. (I'm mainly concerned with you fleshing out at least one idea, but plan on writing at least 15 pages for the course.) Note: your term paper is not expected to establish a formal result!

Students may take the class P/NP; then the requirements are weekly participation, problem sets, and one *Analysis*-length paper. Auditors are enthusiastically welcomed.

4 Accommodations

Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD) which is located in University Center 202 behind Center Hall. Students are required to present their AFA letters to Faculty (please make arrangements to contact me privately) and to the OSD Liaison in the department in advance so that accommodations may be arranged.

(858) 534-4382 (phone) | osd@ucsd.edu (email) | <http://disabilities.ucsd.edu> (website)

5 Tentative Plan

This plan is subject to revision. All readings will be available on the course website.

- **Week 0: Crash course in probability and rational choice**
Brian Weatherson, *Notes on Decision Theory*, Ch. 1.1, 1.2, 2 (ignore 2.5), 3, 4, 6, 7 (ignore 7.2), 9, 11
- **Week 1: Full and partial belief I**
Lara Buchak, "Belief, Credence, and Norms"
Hannes Leitgeb, "The Humean Thesis on Belief"
- **Week 2: Representation theorems**
Michael Titelbaum, *Fundamentals of Bayesian Epistemology* Ch. 8
Chris Meacham & Jonathan Weisberg, "Representation Theorems and the Foundations of Decision Theory"
- **Week 3: Dutch book arguments**
Titelbaum, Ch. 9
Susan Vineberg, "The Notion of Consistency for Partial Belief"
David Christensen, "Preference-Based Arguments for Probabilism"

- **Week 4: Accuracy arguments**
 - Titelbaum, Ch. 10
 - James Joyce, “A Non-Pragmatic Vindication of Probabilism”
- **Week 5: Full and partial belief II**
 - Kenny Easwaran, “Dr. Truthlove: or How I Learned to Stop Worrying and Love Bayesian Probabilities” (ignore appendix)
 - Branden Fitelson, “Belief and Credence: The View from Naive Epistemic Utility Theory”
- **Week 6: Risk aversion**
 - Brian Weatherson, *Decision Theory Notes*, ch. 10
 - Lara Buchak, “Risk Aversion and Rationality”
 - Ryan Doody, “Risk-Taking and Tie-Breaking”
- **Week 7: Coherentism and foundationalism in formal epistemology**
 - Titelbaum, Ch. 4.1.1, Ch. 5.5
 - David Christensen, “Confirmational Holism and Bayesian Epistemology”
 - Daniel Greco, “Cognitive Mobile Homes”
- **Week 8: Holiday: no class**
- **Week 9: Modals and conditionals**
 - Irene Heim and Kai von Fintel, *Intensional Semantics*, ch. 2–5
- **Week 10: Epistemic modals**
 - Seth Yalcin, “Epistemic Modals”
 - Sarah Moss, *Probabilistic Knowledge*, ch. 3