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Office Hours: Tuesday 1–3PM
Cathedral of Learning 1009E

DECISIONS, GAMES & RATIONAL CHOICE

COURSE DESCRIPTION

This course explores the foundations of Bayesian decision theory, game theory, and (time permitting) the theory of social choice, from a philosophical perspective. We will familiarize ourselves with formal tools employed in these theories including the elements of probability theory, conditionalization, Bayes theorem, Nash-equilibrium, backwards induction, and various limitative results about social choice functions and voting systems. Along the way we will press various foundational questions for these theories (What is probability? What is utility? What does it mean for a choice to be instrumentally rational or irrational?), as well as more specific questions about the rationalizations of the formalisms (what presuppositions about rationality, e.g., go into a game theoretic solution concept such as Nash equilibrium?).

Prerequisites: Phil0050 or the permission of the instructor.

COURSE REQUIREMENTS AND GRADING

The requirements for the course are (roughly) weekly problem sets, an in-class midterm and a take-home final exam. Your grade is made up as follows.

50%	Problem Sets
20%	Midterm
30%	Final Exam

You may work in groups on the problem sets but **you must do your own individual write ups and you must always also write who you collaborated with**. Failure to do your own write up or to write the names of your collaborators will be considered plagiarism. (See the "problem set policy" for more information.)

TEXTS

Readings are drawn from various sources which can all be found on the course website. Ultimately, though, to pass the course you must grasp the material that's presented in *lecture* well enough to do the problem sets, midterm, and final exam. The readings serve as an entry-point to the topics we cover together in class. The course website can be found at:

www.jshaw.net/courses/games.html

You will need a password to access some of the documents, which is on the syllabus handed out the first day of class. If you lost it, you can find the password again on Blackboard.

SCHEDULE OF TOPICS AND READINGS

The following is a *rough* outline of the pace of the course. We may slow down or speed up, depending on many different factors. I may also slightly adjust the readings as we proceed. (*DT = Brian Weatherson's Decision Theory Notes*)

PART I: DECISION THEORY

Week 1	Introduction & Basic Choice Strategies
	DT §§1.2, 2
Week 2	Uncertainty v. Risk, Axioms, Dutch Books & Conditionalization
	Strevens, Bayesian Confirmation Theory (§§3.2–3.4)
Week 3	Bayes' Theorem, Maximizing Expected Utility
	DT §9
Week 4	Philosophical Questions About Probability & Utility
	DT §§11–12,
	Parfit, "What Makes Someone's Life Go Best?"
Week 5	Puzzles about Conditionalization, Maximizing Utility
	Elga, "Self-Locating Belief & the Sleeping Beauty Problem"
Week 6	Evidential & Causal Decision Theory
	Resnik, Choices (§§4.5–6)

In-Class Midterm Tuesday, February 25

PART II: GAME THEORY

Week 7	Games, Dominance, Iterated Dominance & the Median Voter Theorem
	Dixit & Nalebuf, Thinking Strategically §§3.1-3.3
Week 8	Best Responses & Nash Equilibrium
	DT §19.3
Week 9	Mixed Strategies & the Significance of Equilibria
	DT §§20.1-20.2, 21.2–21.3
Week 10	Many-Move Games
	DT §22
Week 11	Backwards Induction, Coordination and Focal Points
	DT §23, Schelling, Strategy of Conflict Ch. 3

PART III: COLLECTIVE CHOICE

Week 12	Group Decisions, Intransitive Preferences & Arrow's Theorem
	DT §24-5
Week 13	Voting
	DT §26-7

Take-Home Final handed out on April 15th and due on April 25th
(No class April 17th)