

Rational Choice
Carnegie Mellon University
Fall 2009

*Reason is, and ought only to be slave to the passions, and
can never pretend to any other office than to serve and
obey them.*

~ David Hume ~

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We often criticize one another's decisions. People who spend their money at casinos are charged with being ignorant, people who save too much are regarded as miserly, people who chose unpleasant mates are fooling themselves, etc. Often times we criticize one another because we disagree with their values -- a greedy CEO is criticized because he cares too much about money. In this course, we will focus on a different sort of criticism, an internal criticism where we regard people as behaving inconsistently with their own ends. Implicitly judgments like this rely on a notion of "correct" decision making, which will be the topic of our course.

This theory, as it has been developed over many years, is now very detailed and complicated; it involves significant mathematics. The theory is not without its critics either, and we will review a few of those criticisms as well. Ultimately, learning about this theory will help to tune ones thinking about a variety of problems from gambling to investing to one's romantic life.

Required Texts:	David M. Kreps (1988) <i>Notes on the Theory of Choice</i> . Westview Press
Course Requirements:	5 Homeworks due throughout the semester – dates to be announced in class* Attendance and participation in class discussion can positively influence your grade up to a full letter grade Graduate students will be given extra homework problems and will be required to attend a separate graduate student section.

(* You are allowed to discuss the homework with one another in attempting to solve the problems, but each individual student must write up the answers independently. If you collaborated with another student in solving a particular problem **you must note who that student is and on which problems you collaborated**. Copying verbatim answers or failing to note collaboration constitutes academic dishonesty.

Reading Schedule

Aug 25	Hume, Kant, and axiomatic methods
Aug 27	Baby set theory and an introduction to preferences (online; Kreps chapter 2)
Sept 1	Preferences with a few objections (Kreps chapter 2; additional reading online)
Sept 3	Ordinal utility (Kreps chapter 3)
Sept 8	Normal form, dominance (readings online)
Sept 10	Decision under ignorance – maximin, maximax, etc. (online)
Sept 15	Introduction to probability (online)
Sept 17	Bayes theorem and belief revision (online)
Sept 22	Interpretations of probability (online)
Sept 24	Why probability? Dutch books and distance measures (online)
Sept 29	Cardinal utilities and expected utility (online)
Oct 1	DeFinetti and soliciting probabilities with bets (online)
Oct 6	Three theories on getting a utility function (Kreps chapter 4)
Oct 8	Introduction to Von Neumann/Morgenstern (Kreps chapter 5)
Oct 13	Von Neumann/Morgenstern continued (Kreps chapter 5)
Oct 15	St. Petersburg and utility for money (Kreps chapter 6)
Oct 20	Allais' and Zeckhauser's paradox (online)
Oct 22	Anscombe/Aumann (Kreps chapter 7)
Oct 27	Anscombe/Aumann continued (Kreps chapter 7)
Oct 29	Soliciting probabilities without utilities (Kreps chapter 8)
Nov 3	Savage's axioms (Kreps chapter 9, through page 132)
Nov 5	Savage's theory (remaining part of Kreps chapter 9)
Nov 10	Conditional Choice (Kreps chapter 10)
Nov 12	Newcomb's problem and act-state dependence (online)
Nov 17	Ellsberg's paradox and alternative probability representations (online)
Nov 19	Introduction to social choice (online)
Nov 24	Arrow's theorem (online)
Nov 26	Rational turkey
Dec 1	Interpersonal comparisons of utility and Harsanyi's theorem (online)
Dec 3	Spill over