ECONOMICS 171: DECISIONS UNDER UNCERTAINTY

Spring 2008   Lectures: M, W 5:00 – 6:20pm   PCYNH 106

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This course will examine how economic agents make decisions under conditions of uncertainty. It will examine the various ways in which economists represent the phenomenon of uncertainty, the fundamental principles of choice under uncertainty, the concepts and measurement of "risk" and "risk aversion," and the analysis of how these features influence economic behavior. In the process of presenting this material, we will examine laboratory methods for eliciting and testing hypotheses about attitudes toward risk, the representation and elicitation of uncertain beliefs, intertemporal choice under uncertainty, psychological evidence and other "paradoxes" that attack the economic approach, and current research in light of this evidence.

Prerequisites:

ECON 100A or 170A; and ECON 120A or ECE 109 or Math. 180A or Math. 183 or Math. 186

Lectures and Problem Sessions:

You are responsible for all the material in the lectures. Partial notes will be available on the class webpage before each lecture. I recommend that you print these out before hand and fill in the missing information. I'll do my best to avoid typos but you're responsible for the correct material. I want you to understand the material instead of simply memorizing it. If you miss a lecture, borrow someone's notes. Problem Sessions are optional but recommended.

Exams:

Your grade will be determined on the basis of two Midterm Exams (25% each) and the Final Exam (50%). Alternatively your lower midterm will count for 15%; your higher midterm will count for 25% and your final will count for 60%. If you miss a midterm for a documented, university approved reason (ie., illness, official university trip) the weight for that exam will be placed on the final. If you miss a midterm for another reason (ie., oversleep) you will receive a zero for that exam. No one will be allowed to start an exam after the first person leaves it.

Midterm 1 will be held in class on Monday, April 21st. Midterm 2 will be held in class on Monday, May 19th. The final exam will be held on Friday, June 13th from 7:00pm – 10:00pm. If you know in advance that you cannot make an exam, please let me know as soon as possible.

Text:

Making Decisions, 2nd Edition, D.V. Lindley, John Wiley & Sons. An abridged version is also available. This version doesn't include chapter 10 or the answers to the exercises. Additional material will be referred to in the lectures. You are just responsible for the material covered in lectures and in the problem sets but the readings may help your understanding of the material.

Practice Questions:

Practice questions will be available online. We will go over these questions in office hours and in the problem sessions. Your best practice for the exams is to try these questions yourself first.

ECON 171: PRELIMINARY COURSE OUTLINE

1. Introduction: Aspects of Decision Making Under Uncertainty   Ch. 1

    a. Positive decision theory vs. normative decision theory.
    b. The representation of uncertainty.
    c. Criteria for choice under uncertainty

2. Preliminary Concepts in Probability Theory   Ch. 2, 3, & 6

    a. Probability distributions and cumulative distribution functions.
    b. Expected value, variance and skewness.
    c. Concave functions, convex functions.
    d. Conditional probability and Bayes' Law.
    e. Compound lotteries and probability mixtures.

3. Expected Utility Risk Preferences   Ch. 4

    a. Expected utility preferences over lotteries.
    b. The axioms of expected utility theory.
    c. The expected utility representation theorem.

4. Risk and Risk Aversion   Ch. 5

    a. Certainty equivalents, risk premiums and attitudes toward risk.
    b. The Arrow-Pratt characterization of comparative risk aversion.
    c. Comparative risk and the theory of stochastic dominance.
    d. Comparative statics of risk and risk aversion.

5. Techniques for Assessing Risk Preferences and Beliefs   Ch. 9

    a. Methodological issues and basic techniques.
    b. Assessing von Neumann-Morgenstern utility functions.

6. Prospect Theory

7. Intertemporal Choice and Dynamic Consistency   Ch. 7 & 8

    a. Static, dynamic and intertemporal choice situations.
    b. The value of information.

8. The Value of Sample Information

    a. Prior analysis.
    b. Decision rules/critical values.
    c. The value of sample information

9. Miscellaneous Topics (Time permitting)