# ECON 87: HOW TO TAKE RISKS FALL 2008

Professor Mark Machina    Office: Econ. Bldg. 217    Office Hours: Wed. 8:00-noon

Seminar days (Tuesdays & Thursdays): Sept 25, 30, Oct 2, 7, 9, 14, 16, 21, 23, 28

Section A: 2:00-2:50pm in Seq 244    Section B: 3:00-3:50pm in Seq 244

This seminar will discuss how one should formulate risky choices, make intelligent decisions in the face of uncertainty, and avoid common pitfalls. We will also compare and contrast the economic and the psychological theories of risky choice.

List of Topics

I. Introduction: How To Represent Uncertainty
II. Simple Criteria for Choice Under Objective Uncertainty
III. Risk Preferences under Objective Uncertainty
IV. Risk and Risk Aversion
V. Risk Preferences and Beliefs under Subjective Uncertainty
VI. "Almost-Objective" Uncertainty
VII. Assessing Risk Preferences and Beliefs
VIII. Evidence on the Shape of the Utility Function
IX. Evidence on the Underlying Assumptions of the Model
X. Alternative Models of Risk Preferences

**READINGS AND PRACTICE PROBLEMS**: I will prepare and distribute custom-designed hand-outs, as well as practice problems, throughout the course.

**EXAMS**: The course is Pass/No Pass. There will be a Midterm and a Final Exam.

# ECON 87: HOW TO TAKE RISKS

## I. INTRODUCTION: HOW TO REPRESENT UNCERTAINTY

**a. Objective Uncertainty**

Probabilities and Objective Lotteries
Compound Lotteries and Probability Mixtures

**b. Subjective Uncertainty**

States of Nature and Subjective Events
Subjective Bets

## II. SIMPLE CRITERIA FOR CHOICE UNDER OBJECTIVE UNCERTAINTY

**a. Stochastic Dominance**

**b. Expected Value and the St. Petersburg Paradox**

**c. Mean-Variance**

**d. Minimax and Minimax Regret**

**e. The "Safety-First" Principle**

## III. RISK PREFERENCES UNDER OBJECTIVE UNCERTAINTY

**a. Utility Functions and Expected Utility**

**b. Properties of Expected Utility Risk Preferences**

Mixture Continuity
The Independence Axiom
Rationality and Dynamic Consistency

**c. The Triangle Diagram**

## IV. RISK AND RISK AVERSION

**a. Basic Concepts**

Certainty Equivalents
Risk Premiums
Attitudes toward Risk

**b. Arrow-Pratt Measure of Risk Aversion**

**c. Increasing and Decreasing Risk Aversion**

**d. Increasing Risk**

## V. RISK PREFERENCES AND BELIEFS UNDER SUBJECTIVE UNCERTAINTY

**a. States of Nature and Subjective Bets**

**b. Subjective Probability**

**c. Subjective Expected Utility**

Weak Comparative Probability
The Sure-Thing Principle

**d. The Hirshleifer-Yaari Diagram**

**e. State-Dependent Preferences**

## VI. "ALMOST-OBJECTIVE" UNCERTAINTY

**a. Properties of Purely Objective Events**

**b. Almost-Objective Events, Acts and Mixtures**

Definition of Almost-Objective Events
Properties of Almost-Objective Events
Why Don't We See Almost-Objective Securities?
"Objective/Subjective *Processes*" or "Objective/Subjective *Events*" ?

## VII. ASSESSING RISK PREFERENCES AND BELIEFS

**a. Assessing von Neumann-Morgenstern Utility Functions**

**b. Assessing Subjective Probabilities**

## VIII. EVIDENCE ON THE SHAPE OF THE UTILITY FUNCTION

**a. Laboratory Evidence**

**b. Field Evidence**

Friedman-Savage Hypothesis
Skewness Preference
Risk Aversion and Wealth

## IX. EVIDENCE ON THE UNDERLYING ASSUMPTIONS OF THE MODEL

**a. Evidence on the Independence Axiom**

The Allais Paradox
The Common Consequence Effect
The Common Ratio Effect

**b. Evidence on the Existence and Use of Subjective Probabilities**

The Ellsberg Paradox
Newcombe's Paradox

**c. Reference Point Effects**

**d. Framing Effects**

## X. ALTERNATIVE MODELS OF RISK PREFERENCES

**a. Prospect Theory**

**b. Rank-Dependent Expected Utility**

**c. Regret Theory**

**d. Generalized Expected Utility Analysis**