AGRICULTURAL ECONOMICS 613

INTRODUCTION TO ECONOMICS OF RISK

Syllabus

3 credits, 3 hrs. of lecture:
Prerequisites: STAT 511, ECON 511, AGEC 552 (or equivalent statistics, microeconomics and math programming)

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Description and Objectives

The course is an introduction to the economics of risk. It emphasizes the expected utility hypothesis and individual decision making. It will be oriented toward providing a background in expected utility theory and application from which students can move on to applications and more advanced work in their fields of specialty. The course is presented at a level that can be handled by agricultural economics master’s students who have had intermediate microeconomic theory.

Grading

Homework and class participation 50%
Final exam 50%

Term Paper or Presentation

Ph.D. students are required to do an acceptable paper or presentation; a term paper or presentation is not required of master’s students. The project or presentation is not intended to be a huge deal. I want you to do something outside of what is covered in class. Some examples: review several articles on a topic, do something empirical, or give a lecture to the class on something you are doing or have done in the area of risk. Many students in the past have presented their MS thesis work if it has something to do with risk, or present something they are working out for their dissertation if it has something to do with risk. I will be flexible and most students choose the presentation option, but a paper is equally acceptable.

Office Hours

Stop in or e-mail for an appointment. The other class I teach (AGEC 424) and meets MWF 1:30 to 2:20 and has four two-hour labs, which begin on Thursdays at 8:30, 11:30 and 1:30 and Friday at 8:30. I check email often (including early morning, evenings, and weekends) so that is the first choice to contact me.
COURSE OUTLINE

**Class 1&2: Introduction**: Expected Utility Hypothesis, Axioms, Proof of EUH, uniqueness of utility, EUH history
Readings: 1 (pp. 77-85) and 2

**Classes 3 through 7: Technical Aspects of Risk**: indirect utility; risk aversion; certainty equivalent; risk premium; insurance premium; maximum bid; absolute and relative risk aversion; increasing, constant, and decreasing absolute and relative risk aversion; units of risk aversion; bounded utility; uncertain vs. certain initial wealth; investor behavior and risk aversion; utility of wealth vs. income; log utility and geometric mean; utility functional forms; getting U(W) from r(W).
Readings: 1, 3-6, 11

**Class 8**: Utility elicitation, Joint estimation of technology and risk preferences
Reading: 12, 13

**Class 9 and 10**: Review of probability, Expected utility and moments, AgRisk, price and yield risk and extension probability
Reading: 15

**Class 11 & 12**: Stochastic Dominance
Readings: 22, 23, 26

**Class 13 & 14**: Mean-Variance Model
Readings: 29, 30

**Class 15**: Riskless Assets: MV Separation Theorem, (SD with a riskless assets)
Readings: 16, 19-23

**Class 16 & 17**: Covariance Risk, Diversification, Singe Index Model
Readings: 32, 35

**Class 18**: MOTAD, Target MOTAD
Readings: 37, 38

**Class 19**: CAPM
Readings: 43, 44

**Class 20**: Increasing Risk I
Readings: 46

**Class 21**: Lexicographic Utility and Safety First

**Class 22**: GAMS problems
Class 23 & 24: Production under Risk  
Readings: 53

Class 25: Increasing Risk II  
Reading: 54

Class 26: Time, Risk, and Related Issues  
Reading: 55

Class 27 & 28: Discrete Stochastic Programming  
Readings: 58

Class 29: Anomalies and Prospect Theory  
Readings: 64-66

Class 29: State Preference Theory  
Readings: 67, 68

Class 30: Review of EUH  
Readings: 69, 70 (tentative)
AGEC 613 Readings

Note: We will be making pdf files of the book chapters that I can email to you. Most of the journal articles are available on-line. Let me know if you can’t find the journal articles. The bold readings are the most important in each section.

**Introduction**


**Technical Aspects of Risk**


**Measuring Risk Attitudes**


Numerous other references on this topic will be handed out in class.

**Review of Probability**


**Stochastic Dominance**

Basic Stochastic Dominance


Nth Order Stochastic dominance


Stochastic Dominance with Respect to a Function
a. Theory


b. Application

c. A computer program
30. Goh, Shih, Cochran, Raskin, “A Generalized Stochastic Dominance Program for the IBM PC”, Southern Journal of Agricultural Economics, December 1989, pp. 175-182. (These authors also have a U of Arkansas bulletin on the program.)

**Mean-Variance**


32. Levy and Sarnat, Portfolio and Investment Selection: Theory and Practice, Chapters 7, 8, 9.


**MV with a Riskless Asset (Separation Theorem)**


**SD with a Riskless Asset**


**MOTAD**


44. P. Barry, editor, Risk Management in Agriculture, Chapters 9 and 10.


**Single Index Model**


**CAPM**


**Increasing Risk**


**Lexicographic Utility and Safety First**


**Production Under Risk**


**Time, Risk and Related Issues**


**Discrete Stochastic Programming**


**Anomalies and Prospect Theory**


**State Preference Theory**


**Review of EUH**