

Rutgers University
Cook College
Department of Agricultural, Food and Resource Economics

Course 11:373:425 - Applications of Econometrics in Agricultural Economics
Fall 2006

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Course Format: Lecture, Discussion, Computer Applications; two 80-minute periods

Course Description: Econometrics is a set of conceptual and statistical tools that can help you find the answers to important economic questions. Economists have used econometric methods to answer such questions as: Does raising the minimum wage lead to higher rates of unemployment among unskilled workers? Can the type of college you attend (public/private) predict your returns to education (future earnings)? Are public school class sizes related to scores on academic achievement tests? Will providing unemployment compensation to farm workers lower worker productivity? Can abortion rates among poorer women be used to forecast future crime rates? Do “shotgun weddings” reduce the number of children born in poverty? The methods taught in this course have been used to answer these questions and a great many others as well.

The course will focus on the application of econometrics through class lectures, discussion, and “hands-on” computer applications and problem sets. The techniques of linear regression will be emphasized but the course will also cover some statistical alternatives when regression assumptions are not appropriate for the problem at hand.

Course Texts:

- Gujarati, D. N. (2005). Essentials of Econometrics 3rd Edition. New York: McGraw-Hill. [GU]
Allison, Paul D. (1998). Multiple Regression: A Primer. Thousand Oaks, CA: Sage. [AL]

Course Grade:

The course grade will be computed as follows:

Problem Sets (5)	30%
Midterm Exam	30%
Final Exam	40%

Course Outline:

This outline gives the topics that we will cover; however, we may spend more time on some topics and less on others if this is necessary.

Week 1	Introduction to Course [GU] Chapter 1
Week 2	Normal Curve, Sampling and Sampling Distributions [GU] Chapters 2, 3
Week 3	Estimation Procedures [GU] Chapter 4
Week 4	Hypothesis Testing [GU] Chapter 5
Week 5	The Linear Regression Model [GU] Chapter 6 [AL] Chapter 5
Week 6	Hypothesis Testing – Bivariate Regression [GU] Chapter 7
Week 7	Multiple Regression - Estimation [GU] Chapter 8
Week 8	Multiple Regression – Hypothesis Testing [AL] Chapters 1, 2, 3, 4, 6
Week 9	[Midterm Exam]
Week 10	Selecting Functional Forms [GU] Chapter 9 [AL] Chapter 8
Week 11	Dummy Variable Regression [GU] Chapter 10
Week 12	Binary Dependent Variables [GU] Chapter 16
Week 13	Problems in Estimating Regression Models Multicollinearity [GU] Chapter 12 [AL] Chapter 7

Week 14 Problems in Estimating Regression Models
Endogeneity and Instrumental Variables
[GU] Chapter 15

Week 15 Problems in Estimating Regression Models
Heteroscedasticity and Autocorrelation
[GU] Chapters 13, 14

Problem Sets:

Problem Set I	Estimation
Problem Set II	Multiple Regression Estimation & Hypothesis Testing
Problem Set III	Statistical Interaction
Problem Set IV	Logistic Regression
Problem Set V	Using Instrumental Variables
Problem Set VI	(Optional) Detecting Collinearity and Heteroscedasticity