Econometrics
AS.440.606.51
Spring 2012 Syllabus

Instructor:
Collin Rabe
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Class Time:
Wednesdays, 6:00 - 8:45 pm
Jan 25 – May 2 (14 classes)

Office Hours:
Wednesdays, 5:30 - 6:00 pm
Online, TBA

Textbook:
Note: Earlier editions may be used, although students must ensure that they answer the proper questions from the 4th edition when completing problem sets.

Course Description:
This course focuses on the application of statistical methods to the testing and estimation of economic relationships. After developing the theoretical constructs of classical least squares, common problems encountered when applying this approach, including serial correlation, heteroskedasticity, and multicollinearity, are discussed. Techniques for dealing with these problems are then examined. Models with lagged variables are considered, as is estimation with instrumental variables and two-stage least squares.

Prerequisites: 440.605 Statistics

Overview:
Introduction to econometrics
- Review of matrix algebra

Cross sectional data
- Simple (univariate) regression model
- Multivariate regression model
- Dummy variables, heteroskedasticity, endogeneity

Time series data
- Times series regression issues (lagged variables, serial correlation)

Advanced topics
- Panel data (i.e. simultaneous use of cross sectional and time series data)
- Endogeneity (instrumental variables, simultaneous equations)
Grading:

Problem Sets – 15%
Midterm Exam 1 – 25%
Midterm Exam 2 – 25%
Final Exam – 35%

Problem sets will be assigned throughout the semester and must be turned in by the end of class on the date they are due. Students should feel free to collaborate on problem sets, though each student must submit their own set of answers. Late submissions will be penalized 20% per day. Exams will be administered during class times. The first midterm will be on Feb 22, the second midterm on Apr 4, and the final exam will be on May 2. Exams will be cumulative, with a focus on the most recent concepts presented.

Plagiarism or cheating on any course work will automatically result in a failing grade.

Schedule (subject to revision):

Jan 25
Introduction, Statistics and Linear Algebra Review
Chapter 1, Appendix B.1-B.4, Appendix D

Feb 1
Simple Regression Model
Chapter 2

Feb 8
Multiple Regression Analysis: Estimation
Chapter 3

Feb 15
Multiple Regression Analysis: Inference
Chapter 4

Feb 22
Midterm Exam 1

Feb 29
Asymptotics, Further Issues
Chapter 5, Chapter 6

Mar 7
Binary Variables, Heteroskedasticity
Chapter 7, Chapter 8

Mar 14
Specification and Data Problems
Chapter 9
Mar 21
Spring Break – No Class

Mar 28
Time series, Serial correlation
Chapter 10, Chapter 12

Apr 4
Midterm Exam 2

Apr 11
Panel data
Chapter 13, Chapter 14

Apr 18
Instrumental Variables
Chapter 15

Apr 25
Simultaneity, Exam Review
Chapter 16

May 2
Final Exam