

**SYLLABUS**  
Econometrics 671  
Spring 2012

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## 1. Course Description

This course is primarily related to the specification of and estimation, prediction, testing and inference in the linear regression model under ideal and generalized conditions. Other topics covered include: a discussion of typical mean-independence violations and instrumental variables estimation.

Throughout the course, we will apply techniques discussed in the classroom using MATLAB, which is available at the computer labs. I will teach you how to write your own m-files and help you to do the problems on the problem sets using MATLAB. The programming side of the course should not be excessively demanding, and instructional tutorials for basic MATLAB operations will be posted online. (I strongly recommend that you go through these as soon as possible).

## 2. Grading and Textbooks

Your course grade will be divided (30-70) among problem sets and an examination score, respectively. Since the problem sets count for 35 percent of your final grade, they will be graded rigorously.

There will be a midterm and final examination given in the course. The midterm will be held outside of class time (Thursday, February 9), while the final exam will occur on the last day of the Module (Thursday, March 1). Both exams will equally contribute toward the examination component of your final grade. That is, a simple average of these two test scores will represent 70 percent of your grade for the class.

The required textbook is *Econometric Analysis* by Greene. Though we will follow this book, you are only responsible for the topics covered in the lectures. Generally speaking, the book should serve to supplement your understanding of the lectures rather than substitute for it.

### 3. Course Outline

The following is a very rough outline of the topics covered in this course. I have broken them down into topics I expect we will cover, although we may move faster or slower than expected.

(4 Weeks). Linear Regression model basics under ideal conditions. Specification, estimation, prediction and hypothesis testing. Finite sample properties and asymptotic properties of the OLS estimator. *Greene, chapters 1-5, 6.1-6.3, Appendices A-D*

- **First Examination (Approximately!) Here**

(1 Week). Heteroscedasticity, consequences for OLS. Generalized Least Squares estimation and Feasible GLS. Aitken's Theorem. *Greene, chapter 9, 10.2.*

(2): Mean-Independence violations: Omitted Variables, Measurement Error in X, Simultaneity and Endogeneity. Instrumental Variables Estimation. Identification. Weak Instruments, Overidentification Testing. Examples of IV in practice. *Greene 8.1-8.3, 8.5, 8.7-8.8*