

University of Minnesota  
Department of Economics

ECON 4261: Introduction to Econometrics  
Fall 2009

**Lecture**

Tu, Th 4:00-5:15pm BlegH 140

**Instructor:** TOLGA UMUT KUZUBAS

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Office Hours: Tu 1:30pm-3:30pm, or by appointment.

**Recitation**

Th 5:30-6:45pm BlegH 140

**Teaching Assistant:** HYUNCHUL KIM

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Office Hours: TBA

COURSE OVERVIEW

This course will present a general introduction to the methods and techniques used in testing economic theory. Both theoretical and practical aspects of this field will be examined, including the familiarization with at least one programming tool. The Classical Regression will be the benchmark from which we will start our study, with special emphasis on the matrix algebra approach to the multivariate model. If time permits, we will study other topics such as time series analysis, discrete choice models.

TEXTBOOK

The textbook for the course is Wooldridge, Jeffrey (2005), *Introductory Econometrics* fourth edition, South-Western College Publications, available at the University Bookstore in Coffman Union.

Other additional textbooks for reference are:

- Hill, Griffiths, Lim (2008) *Principles of Econometrics*, Third Edition, Wiley.
- Greene, William (2004) *Econometric Analysis*, Fifth Edition, Prentice Hall.
- Hayashi, Fumio (2000), *Econometrics*, Princeton University Press.
- Gujarati, Damodar (2002), *Basic Econometrics*, Fourth Edition, McGraw-Hill.

## COURSE PREREQUISITES

You should have a full working knowledge of Multivariate Calculus, Matrix Algebra and Statistics. The courses listed as prerequisites for ECON 4261 are:

- ECON 3101 – Intermediate Microeconomics
- MATH 1271 and MATH 1272 – Calculus
- MATH 2243 – Linear Algebra and Multivariate Calculus
- MATH 2263 – Multivariate Calculus
- STAT 5101 (4101) and STAT 5102 (4102) – Theory of Statistics.

MATH 4242 (Applied Linear Algebra) is strongly recommended. Also, familiarity with computers is expected.

**You must have completed these prerequisites successfully.** I will assume that you know the material taught in the courses listed above. **If you have not completed these requirements, please talk to me as soon as possible.**

## COURSE REQUIREMENTS

**Homework.** There will be 4 homework assignments, all of them worth the same amount of points. You will usually have two weeks to complete each of them. Most of the homework assignments will require you to use a computer software GAUSS or MATLAB. The Teaching Assistant will devote some of the recitation classes to get you started with GAUSS and MATLAB.

**No late assignments are accepted.** Only *documented* special circumstances will exempt you from this rule. If you know in advance that you will not be able to hand in an assignment on time, you must notify the Instructor before the assignment is due and hand it in early. Assignments are due at the beginning of class. Please do **NOT** submit any problem sets via email.

**Collaboration among students is accepted and highly recommended.** However, each student should write the homework separately, clearly acknowledging any type of help that was received. Identical homeworks will be considered scholastic dishonesty and consequently given a grade of zero.

**All assignments must be typed.** Graphs and calculations may be handwritten. Assignments that are not typed will be marked down by 50%. If your answers are not presented in the order that are asked, your assignment will be marked down by 50%. Entire answer of a problem must be presented together, you may not answer the problem and then draw the necessary diagrams at the back of the assignment. If this is not adhered, the assignment will be marked down by 50%.

**Examinations.** There will be a **Midterm Exam (in class)** and a **Final Exam (4:00am-6:00pm Thursday, December 17)**. All exams are cumulative due to the nature of the course. Only standard calculators (i.e. not the programmable ones) are allowed in the exam, but no books or notes may be consulted.

**Grade Distribution.** The homework assignments will count towards 30% of the grade. The Midterm Exam will count for 30% of the final grade, and the Final Exam will be worth the remaining 40% of the final grade.

#### GRADING SCALE

Percentage	Grade
100-92	A
91-90	A-
89-88	B+
87-82	B
81-80	B-
79-78	C+
77-72	C
71-70	C-
69-68	D+
67-60	D
59 and below	F

**NOTE:** We reserve the right to lower the cutoff grades of the grading scale. We will not raise these cutoff points.

#### Course Outline

The following is a list with the topics that will be discussed throughout the course. **Given time constraints, it is very likely that not all of the topics will be covered.** In any case, the list will give you an idea of the concepts that the course is going to deal with. The order of the topics is subject to change if needed.

Introduction  
Matrix Algebra Review  
Statistics Review  
Criteria for Estimators  
Ordinary Least Squares  
Classical Linear Regression Model (CLRM)  
The Multivariate Case  
The Gauss-Markov Theorem  
Hypothesis Testing  
Maximum Likelihood  
Heteroscedasticity  
Autocorrelation  
Generalized Least Squares (GLS)  
Instrumental Variables  
Multicollinearity  
Introduction to Time Series and Dummy Variables  
Discrete Choice Models