Economics 4213

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Hours TBA

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1 Purpose

The purpose of this course is to prepare you to use regression analysis given a well-defined economic problem. Emphasis will be placed on your ability to understand when to adopt a particular model or technique, how to implement it, and how to interpret your results. This means that you will be spending a significant portion of your time this semester in front of the computer terminal.

1.1 Recommendation

I recommend that you find a study partner. There is a lot of material to learn in this course and some of it will appear to be overly technical (though I promise you that I will avoid anything that I do not deem necessary to achieve our stated purpose). Each person in the course will have different opportunity costs associated learning the many things that we are covering. Therefore there are ample possibilities to use the law of comparative advantage to *your advantage*.

2 Textbooks

Required

Hill, Griffiths, and Judge, *Undergraduate Econometrics*, John Wiley & Sons, 1997.

Other Sources

SAS/ETS Software: Applications Guide 2.

Peter Kennedy, *A Guide to Econometrics*, 3nd Edition, MIT Press.

3 Prerequisites

This course requires you to work with basic probability, statistics, algebra, and to use SAS. I will be teaching you a little matrix algebra and I will use a very small amount of calculus. You will not be asked to derive estimators using either of these tools. They are used in order for you to see where the estimators come from (as opposed to believing that they come from the ether). As prerequisites I recommend 2 courses in statistics in addition to a good command of algebra. You should have some notion about what random variables are, what a probability distribution is, what a statistic is, and what a hypothesis test is. These are things that we will cover, but we move through them quickly. If you haven't learned about these before you'll never be able to keep up. It is not necessary that you have any previous experience with linear regression, though this would be *very* helpful.

4 Course Outline

1. Introduction to Econometrics
   (a) The Role of Econometrics in Economic Analysis (Chapter 1)
   (b) Probability (Chapter 2, sections 1-6 and 8)
2. SAS Basics (Data Input, Printing, Descriptive Statistics, and Plotting)
3. Simple Linear Statistical Model
   (a) Simple Regression (Chapter 3)
   (b) More SAS (REG or SYSLIN)
   (c) Properties of the Least Squares Estimator (Chapter 4)
   (d) Inference in the Simple Regression Model (Chapter 5)
   (e) Functional Form, Reporting Results, and Carrying Out an Econometric Project (Chapter 6)
4. General Linear Regression Model
   (a) Matrix Algebra and SAS
   (b) Multiple Regression: Hypothesis Tests and Use of Nonsample Information (Chapter 8)
   (c) Extensions of Multiple Regression (Chapter 9, sections 1-7 and 9)
5. Topics in Econometrics
   (a) Heteroscedastic Errors (Chapter 10)
   (b) Autocorrelated Errors (Chapter 11)
   (c) More SAS (AUTOREG)
   (d) Seemingly Unrelated Regressions (Chapter 12)
   (e) Simultaneaous Equations (Chapter 13)
   (f) More SAS (MODEL)

Given the wide range in the level of preparation students in this course have, I reserve the right to make changes in the course syllabus as I deem necessary to accomplish our objective.

5 Exams

There will be 3 in-class exams in the course. The fourth and final exam consists of an extended homework assignment that will be due at the beginning of the period at the time of our regularly scheduled final exam.

5.1 Grading

Your grade in this class will be based on your performance on 4 exams and on homework assignments. The exams and homework will receive the following weights.

Grade Weights	
Exam 1	20%
Exam 2	20%
Exam 3	20%
Exam 4	20%
Homework	20%

Grades will be assigned based on your mastery of the items listed on the accompanying page.

Grades	
90%–100%	A
76%–90%	B
60%–75%	C
50%–60%	D
$< 50\%$	F

6 Homework

There will be a significant amount of homework in the course. The best way to learn econometrics is to do econometrics. A large portion of your homework will require you to use a computer.

The computer software that I am going to show you how to use is SAS. SAS is available on most of the Microsoft Windows based computers on campus, including those in the CBA lab, the student tech fee labs around campus, and others. It is also available on our mainframe computer system which means that you may be able to use it from your computers at home, provided you have a modem and the proper CIS account access. If you are interested in this option, contact CIS for information and instructions. I am not familiar with the use of SAS in the mainframe environment anymore, so if you choose this option you are on your own. I can provide you with some support on its use on the PCs.

The major disadvantage of using SAS is that it is prohibitively expensive for individuals to purchase. Many wish to learn software that is more portable

and to facilitate this you may also do your homework using Eviews. Eviews is a Windows based software package that will do most, if not all, of the stuff we will do in SAS and a bit more. It is particularly well-suited for graphical analysis. At this time, it is available only in the CBA lab. If you choose to use Eviews, the best way to get started is to use the online help and follow the instructions in the demonstration section of the online help.

I will not accept late homework under any circumstance. I expect homework to be legible and well organized. I encourage you to work with others in the class while doing homework, and may turn in assignments in groups of 2. The homework receives style points, so identical answers may receive different grades. I am predisposed to work that is well organized and legible.

6.1 Homework Grade Scale

In order to speed the grading process (other things equal, the faster the feedback the more you learn), I sometimes assign categorical grades, i.e., A-, B+, C-, etc. To make it easier to tell how you are doing in the course, I have derived the following scale:

Grades

Grade	Numerical Equivalent
A+	4.33
A	4.00
A-	3.66
B+	3.33
B	3.00
B-	2.67
C+	2.33
C	2.00
C-	1.67
D+	1.33
D	1.00
D-	0.67
F	0

6.2 Homework Grades

Use the following scale to interpret your homework average.

Grades	
grade > 3.5	A
$2.5 \leq$ grade < 3.5	B
$1.5 \leq$ grade < 2.5	C
$.67 \leq$ grade < 1.5	D
$< .67$	F

All exams must be taken at the designated time. No make up exams will be given. If you miss an exam you will receive a grade of zero.

Unless you are specifically told otherwise by me, all homework must be turned in at the beginning of the class period on the date that it is due. Homework will not be accepted if late.

7 Attendance

Regular attendance is expected. You are responsible for any material you miss because of absence. In general, I do not permit students to copy my notes. If you miss class and need a copy of the notes, please obtain them from one of your classmates.

8 Cheating Policy

Cheating will not be tolerated. Any violation of the University's academic dishonesty policy will be prosecuted according to University regulations. You will receive a grade of 0 on any test or assignment you are caught cheating on. In addition, you are responsible for the security of your work (in other words, if someone copies your work, you will also receive a zero on the test or assignment).

Econometrics is Fun!