Economics 4213

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1 Purpose

The purpose of this course is to prepare **undergraduate** students 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 much 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*.

1.2 A Warning

This class is not typical of many at OSU in one important respect. This course requires you to do a lot more work outside of class than you are probably used

to. If you are not willing or are unable to spend the time required (which will average about 6 hours a week outside of class–more if you run into problems), then you should find another class to take while you still can. The most common complaints about this class are that it takes too much time, it is too hard, and Dr. Adkins expects us to know too much. My response is, 'welcome to econometrics.' This is the nature of the course and similar to other econometrics courses offered at this level. The good news is that you will be learning something that could be valuable come job hunting time. Learning the material in this course can actually make a difference in the kinds of jobs for which you qualify.

2 Textbooks

Required

James H. Stock and Mark W. Watson, *Introduction to Econometrics*, Addison-Wesley, 2004.

Other Sources

There is an excellent website that is provided by the authors and publisher of your book. It can be found at

`http://wps.aw.com/aw_stockwatsn_economtrcs_1`

If you purchase a new textbook, the material on this site is free. If you buy a used book, the price is $14.40. It includes answers to problems in the book, powerpoint slides, sample quizes, data sets, tutorials, and other stuff. I think it is well worth purchasing if bought your book used.

3 Prerequisites

This course requires you to work with basic probability, statistics, algebra, and to use Stata. 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
2. Some basic probability concepts
3. Review of basic statistics
4. Linear Regression with one regressor
5. Linear Regression with several regressors
6. Nonlinear regression functions
7. Assessing studies based on multiple regression
8. Regression with panel data
9. Regression with a binary dependent variable
10. Instrumental variables regression

5 Exams

There will be 3 exams in the course. The final (exam 3) may include a take-home portion that will be due at the beginning of the period at the time of our regularly scheduled final exam.

You will also be required to complete all other homework assignments. Remember, no assignment will be accepted if turned in past the due date. For reference, 'Beginning of week' means on Tuesday and 'End of week' means Thursday.

6 Grades

Your grade in this class will be based on your performance on 3 exams, and homework assignments. All assignments and tests will be the same for both

graduate and undergraduate students. All assignments will be graded using the same standard. However, final course grades will be assigned based on different standards. **That means that undergraduates are not competing with the grad students for As and Bs!** Naturally, a higher performance standard applies to grad students in determination of the final grade.

The exams and homework will receive the following weights. Graduate students may be graded using a different standard than undergraduates.

6.1 Undergraduate Student Grades

Grades for undergraduate students will carry the following weights and be measured according to the accompanying scale.

Grade Weights	
Exam 1	25%
Exam 2	25%
Exam 3	30%
Homework	20%

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

Note: Exam 3 may contain a take-home portion that will require you to do some work using Stata. This is one reason why it carries a bit more weight than the other exams.

6.2 Masters Student Grades

Grades for masters degree students will carry the following weights and be measured according to the accompanying scale.

Grade Weights	
Exam 1	25%
Exam 2	25%
Exam 3	30%
Homework	20%

Grades	
92%–100%	A
82%–91.9%	B
70%–81.9%	C
60%–69.9%	D
$< 60\%$	F

7 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 we are using is STATA. STATA is a Windows program that operates under the Windows 2000 or Windows XP operating system on the microcomputers in the CBA lab.

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.

7.1 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

7.2 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.

8 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.

9 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!