

## **ECON 281: Introduction to Applied Econometrics**

Spring 2018

MWF 1:00 PM - 1:50 PM, Lutkin Hall

Dr. Jeffrey T. Lewis (ECON)

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Office Hours: Monday 3:00-4:00, Tuesday 3:00-4:00, Wednesday 3:00-4:00, Thursday 3:00-4:00, Friday 3:00-4:00 (or by appointment)

### **Teaching Assistant**

TA Isaac Loh

TA Cassiano Machado Alves

TA Isaac Loh

TA Cassiano Machado Alves

TA Kristina Manysheva

TA Kristina Manysheva

### **Section Times/Locations**

21: Tu, 5:00-5:50, 560 Lincoln St. Classroom 101A

22: Th, 5:00-5:50, Shepard Hall B25

23: Tu, 6:00-6:50, 560 Lincoln St. Classroom 101A

24: Th, 6:00-6:50, Shepard Hall B25

25: Tu, 5:00-5:50, Annenberg Hall G01

26: Th, 5:00-5:50, Annenberg Hall G01

TA Isaac Loh (IsaacLoh2015@u.northwestern.edu)

TA Cassiano Machado Alves (cassianomachadoalves2020@u.northwestern.edu)

TA Kristina Manysheva (KristinaManysheva2021@u.northwestern.edu )

TA office hours and locations will be posted on Canvas.

### **LEARNING OUTCOMES**

In this class, students will: Increase their knowledge of both regression with one regressor and regression with multiple regressors. Familiarize themselves with Stata.

### **COURSE WEBSITE**

This course has a website on Canvas. Everyone should automatically be enrolled in the Canvas website upon official enrollment in the class. I will post my lecture notes on the website by 5:00 pm the day before class. You should print out the materials and bring them to class. Problem sets, problem set solutions, and other materials will also be posted on the website. I will post announcements on the website stating what you should print out for class and when assignments are due.

### **COURSE MATERIALS**

The textbook for the course is *Introduction to Econometrics* by James H. Stock and Mark W. Watson. You can use either the third edition or the third edition update. You will also need a calculator for this class. You can use any type of calculator. Bring your calculator to every class.

### **SECTIONS**

Each week, I will post section problems on Canvas. You will print out the section problems and bring them with you to section. You don't have to solve the problems ahead of time. The TAs will work through the solutions. The section problems will be similar to problems that you will encounter on the problem sets and exams.

### **CANVAS PROBLEM SETS**

Almost every week, I will post at least one problem set on Canvas. You will need to submit numerical answers or answer multiple choice questions on Canvas. Canvas will automatically grade the problem sets. If you miss the deadline for submitting your answers, you will not receive credit for that problem set. For questions about how to complete the Canvas problem sets, read the policy\_canvas\_psets handout on Canvas (under Policies folder).

## OFFICE HOURS

Most weeks, I will post two problem sets on Canvas- version *a* and version *b*. During office hours, you can ask us questions about version *a*, but you need to complete version *b* on your own. Make sure you attempt version *a* before you come to office hours. Bring your work with you to office hours so that we can look over your work to help determine where you might have made a mistake. Do not come to office hours with a blank problem set sheet.

## QUIZZES

We will give quizzes during lecture this term. The default is that the quizzes will be unannounced. The quizzes will be open-note (not open-phone or open-computer). Make sure you bring your calculator and all the tables we post to class every class. You cannot borrow or share a calculator. The tables will not be provided.

## COMPUTER PROBLEM SETS

The computer problem sets will involve Stata. We will meet in the computer lab (Tech PC classroom) on April 19-20, May 3-4, May 24-25, and May 31-June 1.

## EVALUATION

Grades are based on the following distribution:

Canvas Problem Sets, Computer Problems Sets, and Quizzes together	15%
Exam #1	20%
Exam #2	25%
Final Exam (cumulative)	40%

None of your version *a* problem set scores will be dropped. None of your version *b* problem set scores will be dropped. None of your computer problem set scores will be dropped. We will drop your lowest quiz score. At the end of the term, we will do this calculation:

$$[(\text{your PS points} + \text{your quiz points}) / (\text{total PS points} + \text{total quiz points})] \times 100\%$$

This percentage score will constitute 15% of your final grade.

None of your exam scores will be dropped. You cannot use a formula sheet on any of the exams.

## EXAM DATES

Exam #1 will be given in class on Wednesday, May 2.

Exam #2 will be given in class on Monday, June 4.

The Final Exam will be given on Friday, June 15 from 9:00 AM - 11:00 AM.

You must take the Final Exam on the date and time specified above.

## EXCUSED ABSENCES

If you miss an exam or quiz for an excused reason, such as illness, a family emergency, or travel with a University sports team, then you need to fill out the excused absence form on Canvas, staple your documentation to the back of the excused absence form, and hand everything in to me during lecture (during the next class that you are able to attend). If you are ill, you should report in person to the Student Health Service prior to the time of the exam. In the absence of documentation, an absence will be considered unexcused. If you miss an exam or quiz for an unexcused reason, you will receive a 0 on that assessment. Missing class for a job interview, a job-related activity, an internship interview, an internship-related activity, any activity related to another class, or a family event would not constitute an excused absence.

## MAKEUP POLICIES

### Canvas Problem Sets

Since you do not have to be physically present in the classroom to submit your answers to the Canvas problem sets, there are no makeup Canvas problem sets. If you miss the deadline for submitting your answers, you will not receive credit for that problem set.

### Computer Problem Sets

You must hand in a hard copy of each computer problem set in class. If you miss class on the due date for an excused reason, bring the excused absence form and your documentation to the next class. Your missing score will be replaced with your Final Exam score.

### Quizzes

We are going to drop your lowest quiz score. If you only miss one quiz and you miss that quiz because of an excused reason, that score will just be dropped. If you only miss two quizzes and you miss both quizzes for excused reasons, your first missing score will be dropped and your second missing score will be replaced with your Final Exam score. If you only miss two quizzes, and you miss one quiz for an excused reason and one quiz for an unexcused reason, your score from your excused absence will be dropped and your score of 0 from your unexcused absence will be counted.

### Exams

If you miss Exam #1 or Exam #2 for an excused reason, you will not take a makeup. All of the weight from the missed exam will be added to the Final Exam.

If you miss both Exam #1 and Exam #2 for excused reasons, then your final grade will be determined by whichever calculation is lower (method *a* or method *b*):

- a)  $100\% \times (\text{Problem Sets and Quizzes together})$
- b)  $100\% \times \text{Final Exam}$

To qualify for an Incomplete if you do not take the Final Exam:

- 1) Your absence from the Final Exam has to be for an excused reason.
- 2) You have to have either taken Exam #1 and Exam #2, taken Exam #1 and missed Exam #2 for an excused reason, or taken Exam #2 and missed Exam #1 for an excused reason. (If you miss both Exam #1 (for any reason) and Exam #2 (for any reason), you would not qualify for an Incomplete.)
- 3) Your course grade going into the Final Exam has to be at least 60%.

If you do not take the Final Exam and do not qualify for an Incomplete, then your score of 0 on the Final Exam will be counted.

If you do not take the Final Exam and receive an Incomplete, then your final grade will be determined by whichever calculation is lowest (method *a*, method *b*, or method *c*):

- a)  $100\% \times (\text{Problem Sets and Quizzes together})$
- b)  $100\% \times \text{Makeup Final Exam}$
- c)  $15\% \times (\text{Problem Sets and Quizzes together}) + 20\% \times \text{Exam \#1} + 25\% \times \text{Exam \#2} + 40\% \times \text{Makeup Final Exam}$

(For method *c*, if you missed either Exam #1 or Exam #2 for an excused reason, then that weight will be added to the Makeup Final Exam.)

## GRADING POLICIES

For questions on how to deal with rounding on problem sets and exams, read the policy\_rounding handout on Canvas (under Policies folder). If a grading mistake was made on your exam, you need to give me your exam during the lecture following the lecture in which the exams were initially returned. Final grades will be decided on the following scale:

A	93.0-100
A-	90.0-92.99
B+	87.0-89.99
B	83.0-86.99
B-	80.0-82.99
C+	77.0-79.99
C	73.0-76.99
C-	70.0-72.99
D	60-69.99
F	Below 60

## CLASSROOM POLICIES

### Laptop Computer Policy

Except in the case of proven medical necessity, students may not use a laptop computer or computer tablet during the lectures. Such devices must remain in your bag, and may not be placed on your desk.

### Cell Phone Policy

Cell phones should have the ringer turned off and be placed in pockets or backpacks. Students may not make or receive phone calls, surf the web, or send or receive text messages during class.

If you violate a classroom policy and we ask you to leave the classroom and you decline to leave, then you will receive an F in the class for the term.

## NORTHWESTERN POLICIES

### Academic Integrity

The Provost's Office maintains information on resources and university principles related to academic integrity; see <http://www.northwestern.edu/provost/policies/academic-integrity/>.

### Disability Accommodations

Any student with a documented disability needing accommodations is requested to speak directly to the AccessibleNU office (<http://www.northwestern.edu/accessiblenu/>) and the instructor, as early as possible in the quarter (preferably within the first two weeks of class). All discussions will be confidential.

## TENTATIVE TOPICS COVERED

Review of Statistics/ Review of Random Variables

Chapter 4- Linear Regression with One Regressor

Chapter 5- Regression with a Single Regressor: Hypothesis Tests and Confidence Intervals

Chapter 6- Linear Regression with Multiple Regressors

Chapter 7- Hypothesis Tests and Confidence Intervals in Multiple Regression

Chapter 8- Nonlinear Regression Functions

Chapter 10- Regression with Panel Data

Chapter 11- Regression with a Binary Dependent Variable

Instrumental Variables (Introduction)