

**ECO 480 - Econometrics**  
**Fall 2015**

Professor Joanne Song McLaughlin  
441 Fronczak Hall, Ext 8685  
Office Hours: W 3-6 pm

Class Meetings:

Section A MWF 2-2:50 pm, Frnczck 454  
Section B MWF 9-9:50 am, Capen 262

Teaching Assistant: Your TA will be assigned by the department by the second week.

Discussion Sections: All students **MUST** register for one of the two discussion sections. Attendance is mandatory and it will be part of course evaluation.

Prerequisites: MTH 121, 131, or 141

Course Objectives: This course will provide you an introduction to econometrics. Econometrics is a tool that allows one to use data and statistical techniques to answer real-world questions and test predictions of economic theory. This course is the first in a multi-course sequence on basic applied econometrics. This course provides some statistics tools and techniques for study in economics and business. It focuses on applications and interpreting the findings of econometric studies.

The goal of this class is for you to be able to use econometric tools to analyze data, understand the linear regression model, and critically assess studies using these tools. An important part of the class will be use of the computer statistical package to analyze data. Econometrics is used in business, government, and academia for purposes such as studying the effects of government policies, using historical data to forecast future values of variables such as the stock market, analyzing markets, and testing the predictions of economic theory.

We will cover basic theory of probability, mathematical statistics, and the linear regression model. Some specific topics include measures of central tendency and spread in economic data, probability, binomial and normal distributions, estimation, confidence intervals, testing of hypotheses, analysis of variance, and simple linear regression analysis.

Student Learning Outcomes:

Upon completion of Econometrics I, students will be able to:

1. Analyze data and apply empirical or theoretical methods to guide decision-making.
2. Interpret mathematical models, formulas, graphs, and tables, and draw inferences from them.
3. Choose appropriate models for a given problem, using information from observed or deduced data and knowledge of the system being studied.

4. Employ quantitative methods, mathematical models and/or statistics to develop well-reasoned arguments to identify and solve real world problems beyond the level of basic algebra, while also being able to recognize the limitations of mathematics and statistics.
5. Recognize common mistakes in empirical and deductive reasoning, and mathematical and quantitative problem solving.
6. Express inferences and conclusions in writing.

These outcomes are delivered through lecture, discussion, problem sets, and exams; student achievement are assessed through class participation, problem sets and exams.

#### Course Material:

1. Textbook: *Introduction to the Practice of Statistics*, 8th Edition, by Moore, McCabe, and Craig. You may use previous editions. However, you are responsible for material in the 8th edition (in particular, material and homework questions). You may come by office hours to examine a copy of the 8th edition.
2. Computer Software Package: **Stata**  
Stata is available at a large discount for students. You need at least Stata IC version to do problem sets.

Stata website: <http://www.stata.com/order/new/edu/gradplans/student-pricing/>

Upon my approval, you may use R, Matlab, or SAS if you are more familiar with these programs. You may NOT use Excel.

Problem Sets: There will be 6 problem sets and they are equally weighted. The problem sets are difficult and time-intensive, so plan ahead. The problem sets consists of solving theoretical problems and analyzing real data using Stata. The questions require that you work at a higher level of difficulty than the book. Students are permitted to discuss the questions from the problem sets, but you are required to hand in your **own** independently written solutions to the problem sets, relevant Stata output, and the organized and well-commented do-files for all the exercises. Since the topics from the problem sets will be on the exams, it is critical that you understand the material independently. No late work will be accepted.

Exams: There will be two in-class midterm and a final exam. Two midterm exams are equally weighted. I will announce the midterm exam dates in class, but the final exam will be held during the University's assigned finals period. Your final exam schedule is available in your HUB Student Center via MyUB. All the exams will be cumulative and they may cover any material from the assigned readings in the text, the problem sets, and any additional material that I cover in class.

Attendance and Class Participation: I expect you to attend class, and you will be responsible for material covered in class that is not available in the text or elsewhere. Please ask

questions if there are things you do not understand. Please get notes from someone else if you miss class, I will not be handing out or posting lecture notes.

Grading Policy: For grading, the problem sets (6) will count for 45 % of the grade, the midterm (2) for 25 %, the final for 25 %, and the attendance and class participation for 5 %. In borderline cases, improvement during the semester as well as useful class participation will positively influence your grade. There is no fixed curve for grading.

Exam Policy: There will be no rescheduling of exams. If you are unable to attend the in-class midterm or final exam, you must provide a legitimate excuse, such as a note from your doctor. Any doctor's note must include a privacy waiver form allowing the College of Arts and Science to call the doctor's office to verify the authenticity of the note. There will be no makeup exams. If you have a valid excuse for missing the midterm, all of the exam part of your grade will be determined by the final exam.

Grading Questions: If you think that your exam has been graded incorrectly, you must write up why you think so, and give this to me within 1 calendar week of getting the exam back. Note that your entire exam is open to regrading, so your grade could go down as well as go up. This policy applies to problem sets as well.

Academic Honesty: You should be familiar with the UB's policy on academic honesty, <http://undergrad-catalog.buffalo.edu/policies/course/integrity.shtml>. If I discover any evidence of cheating, dishonest conduct, plagiarizing, or inappropriate collusion on exams, the students will be given Fs, and otherwise sanctioned to the full extent possible. These terms are explicitly defined at the URL above. Note that cheating includes use of cell phones, PDAs, portable music devices, any other unauthorized book, papers, or device. Leaving the exam room before turning in your exam is cheating. I may request an electronic copy to prevent and check for plagiarism.

Incomplete Grades: Assignment of an incomplete grade ("I") is completely at my discretion. You should be familiar with incomplete grade policies.

<http://undergrad-catalog.buffalo.edu/policies/grading/explanation.shtml#incomplete>

A grade of incomplete indicates that additional course work is required to fulfill the requirements of a given course. You may only be given an "I" grade if you have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, you must initiate the request for an "I" grade and receive my approval. Assignment of an "I" grade is at my discretion. Upon assigning an "I" grade, I will provide, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office. I must specify a default letter grade at the time the "I" grade is submitted. A default grade is the letter grade you will receive if no additional course work is completed and/or a grade change form is not filed by me. "I" grades must be completed within 12 months. I may set shorter time limits for removing an incomplete than the 12-month time limit.

Disability Service: If you feel you may need an accommodation based on the impact of a documented disability, you should contact me privately to discuss your specific needs. Please contact Accessibility Resources at 25 Capen Hall, 716-645-2608 to coordinate reasonable accommodations. More information can be found at <http://www.student-affairs.buffalo.edu/ods/>.

Cell Phone Policy: Please turn off your cell phones or put them on silent and put it away. Please be courteous to me and your fellow students in your use of other electronic devices as it can be extremely distracting.

## Getting Started with Stata

### Useful Online Resources

<http://data.princeton.edu/stata/>

<http://www.ats.ucla.edu/stat/stata/>

[http://www.cmc.edu/sites/default/files/fei/stata/stata\\_tutorial.pdf](http://www.cmc.edu/sites/default/files/fei/stata/stata_tutorial.pdf)

### Useful Video Tutorials

Video tutorials on using Stata by topic

Video workshop at Brigham Young University

### Basic Commands

insheet

infile

use

reshape

generate

egen

replace

if

recode

drop

keep

list

sort

destring

tostring

rename

tab

describe

summarize

mean

proportion

ttest

histogram

scatter

stem

correlate

regress

predict