

Econ 2311 Empirical Methods in Economics I **Spring 2017**

Instructor: Wensu Li wensu.li@uconn.edu
Class Times: Mon Wed Fri 13:25 pm- 14:15 pm. OAK 308
Office Hours: Wednesday 14:30 pm-16:30 pm. OAK 320
Website: [HuskyCT](#)

Course Description

Empirical methods in Economics are about modeling relations among economic variables. Examples range from the relation between interest rates and inflation rate, the effect of the education level on income, or the relationship between labor migration and regional prosperity. To evaluate these relations, economists rely on data analysis. Econometrics, hence, is such a branch of economics that formulates statistical methodology to deal with the empirical problems typical of economic data. Consequently, the objective of this course is to prepare students for basic empirical work in economics. Particularly, topics will include basic data analysis, regression analysis, and testing. Students will be provided with the opportunity to use actual economic data to test economic theories.

Prerequisites

ECON 1200 or both ECON 1201 and 1202; MATH 1071Q or 1110Q or 1125Q or 1131Q or 1151Q or 2141Q; and STAT 1000Q or 1100Q

Course Objectives

After taking this course, students are expected to:

1. Derive the OLS estimates both by hand and by Stata.
2. Understand the properties of estimators (e.g. unbiasedness, efficiency) and the conditions under which they apply.
3. State and understand the Gauss-Markov assumptions for simple regression.
4. Understand the basic large-sample properties of estimators (e.g. consistency, asymptotic efficiency) and the conditions under which they apply.
5. Interpret the coefficients of the multiple linear regression model (in both cross-sectional and time-series settings).
6. Calculate and interpret the R^2 measure of the model's Goodness-of-Fit.
7. Perform t-tests of single linear hypotheses and F-tests of joint linear hypotheses (with Stata and by hand).
8. Understand the implications for estimation results when assumptions of the classical linear model are violated (e.g., omitted variables, heteroskedasticity, serial correlation).
9. Test for violations of the assumptions of the classical linear model with Stata.
10. Specify and use Stata to estimate weighted least squares regressions that correct for the problem of heteroskedasticity and the problem of serial correlation.

Grading Components

Probability and Statistics Quiz	5%
Problem Sets	15%
Midterm Exam	20%
Final Project	20%
Final Exam	40%

Grade Scale

Scores	Letter Grade
>96	A+
93-96	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-
<60	F

Textbook

Wooldridge J M. Introductory econometrics: A modern approach[M]. Nelson Education, 2015. (6th edition)

Stata

This course uses Stata as the statistical package. UConn students can download Stata for free at <https://software.uconn.edu/software/stata/>.

Here are some resources to help you with Stata:

1. Online Stata Tutorial by Data& Statistical Services at Princeton University
<http://www.princeton.edu/~otorres/Stata/>
2. Stata cheat sheets by Dr. Tim Essam and Dr. Laura Hughes
<https://www.stata.com/bookstore/stata-cheat-sheets/>
3. The Stata Forum <https://www.statalist.org/forums/>

Probability and Statistics Quiz

Fundamentals of probability and statistics are important prerequisites of this course. You are likely to have a difficult time understanding this course if you lack this background. In the first few classes, I will review some basic knowledge in Probability and Statistics, and give you a quiz on it. Students who get a grade lower than C- are suggested to reconsider taking this course.

Problem Sets

There will be problem sets (5-7 in total) which will count toward 15% of your final grade. Problem sets are crucial for learning. They are intended to improve your understanding of the material and skills with Stata. They are also important materials to review for exams. The assigned problem set will be posted on Husky CT. The due date is approximately one week after they are posted. You are supposed to hand in hard copies of your answer before the class on the due date. Late submission can be handed in my mailbox in OAK 336 but is subject to a 30% penalty in the score of that problem set. When completing homework assignments, you are encouraged to discuss with classmates or ask me for help during my office hours, but you must do the assignment individually and hand in your own work. Copying answer keys from other students or other sources is strictly prohibited and will result in automatic failure of the course.

Final Project

The final project is a good opportunity for you to apply what you learn in this course to solve an actual problem. It is also a good practice of Stata skills. Each student should submit the project individually. You are encouraged to choose your own topic and dataset. At the same time, a dataset and a specific research question will be provided as the default topic. You are expected to answer the research question as completely and rigorously as you can using the empirical approaches covered in the class on the dataset. Detailed instructions on the project will be given before the spring break.

Exams

There will be one midterm and one final exam. Exams are cumulative. The midterm will take place in class, tentatively in the week before spring break. The time, date, and location of the final will be announced later. Sick absence needs to request permission BEFORE the exam. Students who missed the midterm should submit the missed midterm as an additional problem set. Makeup exams may be offered to a student who obtained approval. You must let me know as soon as possible if you are unable to take a test. Students may choose to take makeup exams to improve their grades with a 75% score ceiling of the original exam. All exams are closed books, but a one-page cheat sheet is allowed. no web accessing devices (such as cell phones, tablets, laptops) are allowed. A calculator is permitted. Cheating during exams will result in automatic failure of the course.

Course Schedule

Week of 16 January	Review of Probability and Statistics Wooldridge Appendices A B C
Week of 23 January	Review of Probability and Statistics Quiz on Probability and Statistics The Simple Regression Model Wooldridge Chapter 2, Appendices A B C
Week of 30 January	The Simple Regression Model Wooldridge Chapter 2
Week of 6 February	Multiple Regression Analysis: Estimation Wooldridge Chapter 3
Week of 13 February	Multiple Regression Analysis: Inference Wooldridge Chapter 4
Week of 20 February	Multiple Regression Analysis: Further Issues Wooldridge Chapter 6
Week of 27 February	Regression Analysis with Qualitative Information Wooldridge Chapter 7
Week of 6 March	Midterm Examination Instructions on Final Project
Week of 20 March	Heteroskedasticity Wooldridge Chapter 8
Week of 27 March	Multiple Regression Analysis: OLS Asymptotics Wooldridge Chapter 5
Week of 3 April	Basic Regression Analysis with Time Series Data Wooldridge Chapter 10
Week of 10 April	Further Issues in Using OLS with Time Series Data Wooldridge Chapter 11
Week of 17 April	Serial Correlation and Heteroskedasticity in Time Series Regressions Wooldridge Chapter 12
Week of 24 April	Review for Final Exam Final Project due
Week of 1 May	Final Exam

Diversity and Inclusion Statement

In this class, we are dedicated to creating an equal and inclusive environment that supports diverse thoughts and individuals (including race, gender, class, sexuality, religion, ability, etc.). If you have a name or a set of pronouns that differs from our records, or if you have some special requests to conform to your culture, religion, or habit, please let me know. If you feel that the course materials, class contents, or what is being said in the class has made you feel uncomfortable, please feel free to let me know or submit anonymous feedback. Also, if you feel that your class performance is being impacted by what is happening outside the class, I am happy to help. Please also feel free to use the resources outside the class. Below are some UConn resources which you can turn to for help:

- UConn Office for Diversity: <https://diversity.uconn.edu/resources/>
- UConn Economics Department Head: Chihwa Kao (chih-hwa.kao@uconn.edu)