Syllabus
ECON 5312: Applied Econometrics II
Spring 2020

Instructor: Jungbin Hwang, Email : jungbin.hwang@uconn.edu
Time and Location: Tuesday: 3:30pm∼6:00pm / OAK 308
Office Hours: Wednesday : 3:00pm∼4:00pm/ Oak 333
   Teaching Assistant: Jiaqi Wang (jiaqi.5.wang@uconn.edu), Office Hours: 10:30am–12:00pm, Monday / Oak Hall 336A

Description of the Course

The course aims to prepare students for practical empirical research in an academic or business setting. As a main goal, students learn and practice the following three basic concepts in econometrics:.

- Using (non) linear regression for *prediction*.

- Using (non) linear regression *to infer and identify causal relationships*.

Students will also practice and build competency in STATA which is a standard software package to perform the empirical analysis in economics.

Textbook

- Wooldridge, J. M. Introductory Econometrics- Modern Approach (7th edition)

- Introduction to Econometrics, 3rd Edition : J. Stock and M. Watson (Recommended Textbook)

Course Web Page

A course webpage is available at **HuskyCT- https://lms.uconn.edu/**. It will include information relevant to the course, such as announcements, homework assignments, information on Stata tutorials, practice problem sets, solutions, updated syllabus, schedule and more. **You should check this page regularly.**

Required Software

STATA (www.stata.com) is a general-purpose statistical software package. Students are not required to the software as you can access to these tools in the computer lab as well as our classroom in Oak Hall 308, and in other computer labs on. Check http://software.uconn.edu/stata/ for on-campus access information.

Grading Schemee

- Midterm Exam: 35% of Final Grade

- Final Exam is replaced with the participation quizzes for online lecture 1–5: 45% of Final Grade

- Participation of Class (includes all the participation quizzes throughout the semester): 20% of Final Grade

On a 100 point basis, below is the "benchmark" cut-offs applied to get a final letter grade. At the end of the semester, there might be a change depending on the students' performance.

Converted Scale (%)	Letter Grade
>=95	A+
[85,95)	A
[80,85)	A-
[75,80)	B+
[70,75)	B
[65,70)	B-
[60,65)	C+
[55,60)	C
[50,55)	C-
[45,50)	D
Below 45	F

Exam Policy

- The mid-term and final exams are a closed-book/note, but students are allowed to bring to a cheat sheet that must be summarized in their own handwriting on a double-sided paper with letter size.

- Students are expected to be available for their midterm exam during the time stated. If you fall ill on the day of the exam and are forced to withdraw during the exam due to the illness, you must deliver a medical certificate explaining for the date of the exam within one week of the exam. The certificate must be issued by a physician or other medical personel and must be delivered to the faculty within one week after the exam date. Once the mid-term exam is properly exempted, the mid-term test score of the student will be replaced by the final exam score.

- In accordance with UConn policy, students are required to be available for their final exam and/or complete any assessment during the time stated. If you have a conflict with this time you **must obtain official permission to schedule a make-up exam with the Dean of Students**. If permission is granted, the Dean of Students will notify the instructor. Please note that vacations, previously purchased tickets or reservations, graduations, social events, misreading the assessment schedule, and oversleeping are not viable reasons for rescheduling a final.

(Tentative) Outline

- Refresher: Probability and Mathematical Statistics

- Regression Analysis for Predicting Outcome Variables

  Population Regression Function, Best Linear Approximation, Simple Ordinary Least Square (OLS) Regression Method, Gauss Markov Theorem, Robust Variance Estimation, Testing : t-test for regression coefficients, R-square, OLS method with multiple regressors, Frisch-Love-Waugh theorem, F-tests for joint hypotheiss testing, Regressors to measure Interactive and non-linear effects, Multi-collinearity (Dummy trap), Nonlinear regression model for limited dependent variables, Logistic regression, Probit regression, Marignal effect for prediction

- Regression Model with Many Regressors

  Ridge Regression, Penalized Regression Model, LASSO and Elastic Net, How to select tuning parameter: Cross-validatation, Adaptive selection, Plug-in methods

- Regression Analysis for Estimating Causal Effect

  Correlation vs Causality, Regression with binary treatment variable, Assumption for randomized treatment, Failure of OLS to estimate Causal Effect (Omitted Variable Bias Formula), Regression with binary treatment variable and controls, Assumption of Conditional (Mean) Independence