National Taiwan University of Science and Technology

2019 Summer Program

ECON 400 Econometrics

Course Outline

Term: July 01-August 02,2019

Class Hours: 18:00-19:50 (Monday through Friday)

Course Code: ECON 400

Instructor: Min Seong Kim

Home Institution: University of Connecticut

Office Hours: TBA

Email: min_seong.kim@uconn.edu

Credit: 4

Class Hours: According to the regulations of Minister of Education, R.O.C, 18 class hours could be counted as 1 academic credit in all universities in Taiwan. This course will have 72 class hours, including 40 lecture hours, professor 10 office hours, 10-hour TA discussion sessions, 2-hour review sessions, 10 extra class hours.

Course Description

This course covers undergraduate level econometrics. The goal of the course is to offer students with statistical and econometric methods which are applied to various empirical applications with economic data. This course intends to train students to be equipped with quantitative skill sets, which are getting more and more important in job markets. The quantitative background is also an important preparation for those who are interested in graduate school.

To implement the methods covered in class, students will learn and practice R-programming with real economic data. R is one of standard software packages for data analysis. It is also free.

Prerequisite

Introductory level statistics

Required Textbook

Introduction to Econometrics, 3rd Edition: J. Stock and M. Watson

Grading & Evaluation

1. Participation (10%)

2. Problem sets (10%): Working on problem sets is also the best way to learn and be prepared for the exams. You are encouraged to discuss problems sets, but all work you submit must be your own.

3. Midterms (40%): You will have two midterms, and each midterm corresponds to 20% of the final grade.

4. Final Exam (40%)

Grading Scale

A: 94-100, A-: 90-93, B+: 86-89, B: 82-85, B-: 80-82, C+: 76-79, C: 72-75, C-: 70-72, D+: 66-69, D: 62-65, D-: 60-62, F: Below 60

Course Schedule

Week1 (SW: Stock and Watson)

Introduction and Review of Probability/Statistics Theory (SW Ch1-Ch3)

Linear Regression with a Single Regressor and the OLS Estimator (SW Ch4.1-Ch4.3)

Properties of the OLS Estimator (SW Ch4.4-Ch4.5)

Week2

Hypothesis Tests and Confidence Intervals (Ch5.1-Ch5.2)

Midterm

Heteroskedasticity and Homoskedasticity (Ch5.4)

Regression with a Binary Regressor (Ch5.3)

Week3

Gauss-Markov Theorem (Ch5.5)

Motivation of Multiple Regression Models (Ch6.1)

The OLS in Multiple Regression (Ch6.2-Ch6.4)

Properties of the OLS in Multiple Regression (Ch6.5-Ch6.7)

Week4

Midterm2

Hypothesis Tests and Confidence Intervals in Multiple Regression (Ch7.1-Ch7.3)

Nonlinear Regression Functions (Ch8.2)

Validity of Regression Analysis: Endogeneity (Ch9.2)

Week5

Instrumental Variable Regressions (Ch12)

Regression with Panel Data (Ch10)

Binary Choice Model (Ch11)

Final Exam