

ECON 322: Introduction to Econometrics

Spring 2018
Rutgers University
Department of Economics

Instructor

Yuan Liao
New Jersey Hall, Office 301B
75 Hamilton St, New Brunswick, NJ 08901
yuan.liao@rutgers.edu

Class Meetings

Lecture: Mondays and Thursdays 9:50 -11:10pm, Academic Building (AB) 4400

Office Hour

Mondays and Thursdays 3:00 PM - 4:00 PM and by appointment.
Course website on Adobe Connect: <https://meetings.rutgers.edu/econ322>

Prerequisite

It is expected that all students will have taken an introductory statistics class (e.g. 960:211 or 960:285), Calculus I (640:135 or 640:151), and principles of economics courses covering both microeconomics and macroeconomics (e.g. 220:102 and 220:103 or 220:200). Especially, students without a good command of the materials on introductory statistics will meet a lot of challenges in assignments and exams.

Final Exam Date : *May 7, 2018, 8am- 11am.*

Make-up exams

(for both midterm and final exams) will be given only in the event of legitimate excuses for missing an exam. “Legitimate excuses” here mean university recognized absences, and often only refer to medical emergency and religious events. You should discuss with me about your legitimate excuses (except for medical emergency) **at least one week ahead of time**. Other excuses such as “attending best friends’ weddings” are not acceptable.

Course Overview & Learning Outcomes

Econometrics is a set of statistical tools used to analyze economic relationships using economic data. The methods taught in this introductory course can also be employed in the business disciplines of accounting, finance, marketing and management and in many social science disciplines.

Students who successfully complete Econ 322 should be comfortable with basic statistics and probability. They should be able to use a statistical/econometric computer package to estimate an econometric model and be able to report the results of their work in a nontechnical and literate manner. In particular a student who successfully completes Econ 322 will be able to estimate and interpret linear regression models and be able to distinguish between economic and statistical importance. They should be able to critique reported regression results in applied academic papers and interpret the results for someone who is not trained as an economist.

Textbook

James H. Stock and Mark W. Watson, *Introduction to Econometrics*, 3rd Edition, Pearson.

MyEconLab

The class will be using MyEconLab for homework assignments and exams. The bundle of the text book and the access to MyEconLab can be purchased online or from the bookstore (around \$65.) Instructions of registration to MyEconlab can be found on sakai.

Computings

Examples in class will be coded in Matlab. Matlab is free to access on the Rutgers University Software Portal. Students can also choose their own packages to work on the assignments.

Lecture outline

1. Introduction

Brief introduction to course; Sources of data.

2. Review of Statistical Concepts

Expected value

The joint, marginal density, conditional density and independence

Covariance and correlation

The Normal density

Hypothesis tests, confidence intervals

3. The Simple Linear Regression Model

The econometric model

Estimating the model and interpreting the results

Inference and prediction in the Simple Linear Regression Model

Midterm

4. The General Linear Regression Model
 - Estimating and interpreting the results
 - Interactions among dependent variables
 - Nonlinear effects
5. Assessing Regression Models
 - Omitted variable bias
 - Errors in variables bias
 - Sample selection bias
 - Simultaneous causality bias
6. Additional Topics in Regression
 - Regression Models with Binary Dependent Variable
 - Instrumental Variable estimation
 - Panel data and time series models

Policy on Attendance

Students are required to attend all classes. If you expect to miss a class because of illness or a family emergency, please use the University absence reporting website to indicate the date and reason for your absence **ahead of time**. An email is automatically sent to me.

<https://sims.rutgers.edu/ssra/>

No need to report absence for excused religious holidays:

<http://www.state.nj.us/education/genfo/holidays1718.pdf>

Assessment

The grading is based on three parts:

Table 1: Grading components

Items	%
weekly assignment	23%
quiz & attendance	7%
midterm exam	30%
final exam	40%

- There will be 2-3 in class **quizzes** given randomly without announcements. Quizzes are mainly designed to motivate attendance.

Table 2: Grading scale

Items	%
$\geq 90\%$	A
$[80, 90)\%$	B or B+
$[70, 80)\%$	C+ or B
$[60, 70)\%$	C
$< 60\%$	D+ or lower

Table 3: Data of last semester

A	12%
B	12%
C	43%
D or below	33%

- **Weekly assignment** is due in a week.
- There will be **one midterm**. Midterm and final exams will be in class, closed book. The date of the midterm exam will be announced at least two weeks before the exam.

Academic Integrity

The university expects all students to adhere to the University Honor Pledge: *I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination.*

Final comments

The best way to learn is by doing. I recommend attempting as many exercises at the end of each chapter of the text as you can.