ECO3007: Econometrics
Spring 2021

Class Day/Time: Monday, Wednesday 9:00–10:15pm
Course Website: HY-ON course community
Classroom: Economics and Finance Bldg., Room 307

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Course Description and Objectives:

In this course, students will learn modern econometric techniques, as employed in economics and finance. Econometrics provides quantitative methods for inferring economic relationships from data. We will study the basic linear regression model and learn how to estimate, test, and predict multivariate relationships, using cross-sectional and time-series data. If time permits, we will also examine the main threats to regression analysis, including omitted variables, functional form misspecification, errors-in-variables, selection, and simultaneity, and ways to recognize these threats in practice. The course will cover both theoretical and practical issues. Problems sets will contain applications to real world data and require the use of statistical software (preferably R).

The goal of this course is that, by the end of the course, students will be able to:
1. Develop formal understanding of econometric theory.
2. Interpret and evaluate results from econometric analysis.
3. Apply econometric techniques to real world data.

Prerequisites:

Undergraduate introductory level of mathematics, statistics, microeconomics, and macroeconomics; or their equivalents

Textbook:

James H. Stock and Mark W. Watson, *Introduction to Econometrics,* 4th Edition, Pearson, Addison-Wesley

Earlier editions of this textbook are acceptable. The updated 3rd edition is available in a PDF ebook format at https://lib.hanyang.ac.kr/#/search/detail/17632879.

Grading:

Attendance and Class Participation	10%
Problem Sets	16%
Midterm Exam	34%
Final Exam	40%

Administrative Details:

1. If social distancing (level 1 or above) continues, lectures will be given online. Online lectures will be delivered live following the regular class schedule. We will e-meet in the HY-ON course community (via zoom) at the scheduled time on Mondays and Wednesdays. If you cannot attend class, please inform the instructor or the TA as soon as possible. Points will be deducted from your total grade for each unexcused absence. Eleven or more unexcused absences will result in automatic failure for the course.

2. The midterm exam is scheduled to take place in-class on Wednesday, April 21. The date, location, and format of the exam are subject to change depending on how the COVID-19 pandemic evolves. There will be no makeup midterm. If you miss the midterm because of a well-documented emergency (e.g., serious illness with a doctor's note, family emergency), the weight on the midterm will be shifted to the final. Otherwise, missing the midterm (without a valid excuse) will result in automatic failure for the course.

3. The cumulative final exam is scheduled for Wednesday, June 16, during the regular class hour. If you have a well-documented emergency (e.g., serious illness with a doctor's note, family emergency) such that you cannot make to the scheduled time, please raise this with us as soon as possible. Otherwise, missing the final (without a valid excuse) will result in automatic failure for the course. Again, the exam schedule, location, and format are subject to change depending on the COVID-19 situation.

4. There will be about eight problem sets throughout the term (approximately one every other week). You may work with other students on the problem sets, but the answers you submit must represent your own understanding of the material. Direct copying is not permitted and will be treated as cheating. Late problem sets will not be accepted. The problem sets will help you prepare for the exams and learn how to conduct an empirical analysis. We will go over some of the problem set questions in class.

5. We will use R for empirical exercises in this course. You will need your own computer for R tutorials. While you are free to use other packages (e.g., Stata, Matlab, Python, Julia, SAS, Eviews), I will not provide much help.

6. No cell phone usage in class; this includes texting. Please turn them off before class begins.

Course Outline (subject to change):

1. Course Introduction
2. Probability: Large Sample Theory (Ch. 2)
3. Statistics Review, Comparing Means (Ch. 3)
4. Linear Regression with One Regressor: Estimation (Ch. 4)
5. Linear Regression with One Regressor: Statistical Inference (Ch. 5)
6. Linear Regression with Multiple Regressors: Estimation (Ch. 6)
7. Linear Regression with Multiple Regressors: Statistical Inference (Ch. 7)
8. Introduction to Time Series Regression and Forecasting: MA and AR models (Ch. 15)
9. R tutorials

Updated: March 2, 2021