National Taiwan University of Science and Technology

2021 Summer Program

ECON 400 Econometrics

Course Outline

Course Code: ECON 400

Course Format: Hybrid (synchronous online lecture and discussion and asynchronous readings, videos, assignments, practical case analysis, exams)

Instructor: Dr. Yunshan (Victor) Lian

Home Institution: University of Wisconsin

Office Hours: TBA

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Credit: 4

Course Description:

ECON 400 is an introduction course to econometrics, and you are expected to have the knowledge of introductory statistics before taking this course.

The purpose of this course is to help students learn how the core econometric methods are used in practical applications through quantitative research method. This course is oriented towards the applications of economic theory with econometric methods rather than the theoretical development of these subjects. Topics include linear and non-linear regression, regression with panel data, time series regression and forecasting.

Learning outcomes:

By the end of the course, students will be able to

- Understand methods for estimating causal effects using observational data.
- Have good understanding with basic statistics and probability.
- Use a statistical/econometric computer package to estimate an econometric model.
- Report the results of their work in a non-technical and literate manner.

- Estimate and interpret linear regression models.
- Distinguish between economic and statistical importance.
- Use regression model to conduct forecasts and interpret the precision of the forecasts.
- Critique reported regression results in applied academic papers and interpret the results.
- Specify assumptions, formulate and estimate appropriate models, interpret the results and test their statistical significance.

Prerequisites:

1. Principles of Microeconomics or equivalent (ECON 2130, ECON 2380)
2. Introductory Statistics (STAT 1830, 2080), Business Analytics (BSAD 2340), or equivalent With minimum grade of C

Required Textbooks:

Introduction to Econometrics (3e) by James Stock and Mark Watson. Publisher: Pearson.
ISBN-13: 978-0133486872
ISBN-10: 0133486877

Recommended Book:

Mastering 'Metrics by Joshua Angrist & Jorn-Steffen Pischke (not required, but recommended as a supplementary material)

Statistical Software

R (free download from here: download R) and STATA (purchase from here: STATA for student)

Evaluation:

10% Attendance & discussion
15% Exercise
15% Practical case analysis
30% Midterm exam
30% Final exam

Attendance & Discussion:

You are expected to actively participate the class time and TA led discussion.

Exercise:

Exercises covering each week's topics need to be submitted in a timely manner. Late submission is not accepted.

Practical Case Analysis

Real cases will be assigned during the semester to help the students have a deeper understanding of how to apply the theories and tools of econometrics to solve the problems from the real world.

Midterm and Final Exam

Midterm and final exam will be in the format of problem solving and concept discussion. Final exam is non-cumulative, which means only covers the rest chapters after the midterm exam.

Grading:

A+ : 95 - 100	A : 94 – 90
B+ : 89 - 85	B : 84 – 80
C+: 79 - 75	C : 74 – 70
D+: 69 - 65	D : 64 – 60
F : Fail	

Academic Integrity

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Students must recognize that failure to follow rules and guidelines may constitute academic misconduct.

Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and/or possession of unauthorized materials during an examination.

Please follow the guideline of the university policy. Academic dishonesty or misconduct will not be tolerated, and may result in disciplinary action including a grade F for the course.

Email Etiquettes

Communication is one of the most important factors in business world. Your way of communication can greatly impact the success or failure of your business. Through the following guidelines, I hope eventually you'll set up a proper communication style for your future career.

1. All messages should have a concise and descriptive subject line. The purpose of the subject line is to alert the reader as to the content of the message. **Please include your course name or number (ECON 400)** so your question/issue can be addressed more accurately.

2. Close your message with a signature. Be certain that you have included your full name and your course name and/or number, so I can identify which class you are involved in and communicate with you more efficiently.

Course Policies

Please go over the learning material and complete the assignments prior to the online meeting, and be ready for discussions and exercise.

Late submission of assignments is not acceptable, just like turning in your project to the management of the company or your client. **It will automatically lead to points deduction by 10% per day (maximum to 50% deduction).**

Any student with a documented disability needing academic adjustments or accommodations, and any student who anticipates a schedule conflict because of religious reasons should notify the instructor through email within the first week of the program.

Course Schedule (may subject to change for the purpose of learning effectiveness)

Week	Topic	Chapter	Assignment
1	Review of probability	Ch 2	Exercise
	Review of statistics	Ch 3	Exercise
	TA led Review session		Review & discussion
2	Linear regression with one regressor	Ch 4	Exercise
	Regression with a Single Regressor: Hypothesis Tests and Confidence Intervals	Ch 5	Exercise
	TA led Review session		Review &discussion
	Case analysis		
	Mid-term Exam	Ch 1~5	
3	Linear regression with multiple regressors	Ch 6	Exercise
	Multiple regression	Ch 7	Exercise

	Non-linear regression functions	Ch 8	Exercise
	TA led Review session		Review & discussion
	Case analysis		
4	Regression with panel data	Ch 10	Exercise
	Regression with a binary dependent variable	Ch 11	Exercise
	Introduction to time series regression and forecasting	Ch 15	Exercise
	TA led Review session		Review & discussion
	Case analysis		
	Final Exam (non-accumulative)		Ch 6-8, 10,11,15