

ECO 465: Econometrics (Spring 2019)

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COURSE DESCRIPTION

Econometrics is a technique constantly used in business, finance, economics, government, consulting and many other fields. While econometrics is closely related to statistics, in reality it is more than just “statistics using economic data”. For example, an econometric model of consumption is very different from a statistical or regression model of consumption because of the underlying behavior of economic agents. Other specific issues that underlie economic data are trends, seasonality and cycles.

This course will cover some core topics in econometrics including (bivariate and multivariate) linear regression models, nonlinear regression, hypothesis testing, and special issues in regression models such as multicollinearity, heteroscedasticity and autocorrelation. Other important topics to be covered are dummy variable model and time permitting an introduction to time series econometrics.

All theoretical concepts will be demonstrated with applied examples based on economic data of various kinds. Although this course will primarily use Stata 13 (or higher) for estimation, students are free to use any software such as Eviews or R.

COURSE OBJECTIVES

When the field of econometrics was developed, it was primarily a time series econometrics because at that time cross-sectional and panel data were not much available. Still today, economics graduates who work in non-academic institutions (private sector, government, and NGOs) mostly rely on time series data. Hence a special attention will be paid to time series data including topics such as trends (deterministic and stochastic), unit roots, cointegration and error correction model. Time permitting, the topic of forecasting will be discussed.

COURSE OUTCOMES

By the end of the course, students shall:

- Understand the concept and derivation of Gauss-Markov theorem.
- Be able to distinguish between theoretical and empirical model.
- Be able to distinguish the “cause” and “effect” in economic relationships.
- Understand different types of data such as cross-section, time series and panel data.
- Know how to explore websites of different data providers for various data need.
- Be able to estimate linear and nonlinear regression models and economically interpret the results.
- Understand the various steps involve in writing an applied term paper in economics.

TEXTBOOKS

- **Introduction to Econometrics** by James Stock and Mark Watson, Third Edition, Addison-Wesley, 2011.
- **Basic Econometrics** by Damodar Gujarati and Dawn Porter, Fifth edition, McGraw-Hill, 2009.

TOPICS

Chapter	Topics
Chapter 1	Introduction to econometrics
Chapters 4 & 5	Fundamentals of linear regression <ul style="list-style-type: none"> • Gauss-Markov theorem (BLUE) • Monte Carlo experiments
Chapters 6 & 7	Multiple regression
Chapters 10–13 (Gujarati & Porter)	Special topics in linear regression <ul style="list-style-type: none"> • Multicollinearity • Heteroskedasticity • Autocorrelation • specification testing
Chapter 8	Nonlinear regression functions
Chapter 11	Dummy (binary) variable regression
Chapter 14	Introduction to time series regression and forecasting

EVALUATION

Assignments	30%
Quizzes	10%
Midterm	30%
Final	30%

MAKE-UP EXAM POLICY: Can't receive an "A" grade if you write a make-up test. Can't write both midterm and final as make-up exams. No make-up for a missing quiz (unannounced).

CODE OF CONDUCT: Sloppiness including absenteeism, late submission of assignment, and lack of communication during class will undermine your academic performance in the class.