Econometrics(GSPIT783)

Spring2017

Prof. Tae Hwan Yoo

Pre-requisites: Managerial Statistics, Quantitative Methods and/or Equivalents(This class assumes not only that you have takenthe pre-requisites, but you really understand them.)

Class Meets: Monday, 6:00-8:45 p.m., Room 208, International Studies Building

Contact Information

Office: Room 401, International Studies Building
Office Phone: 82-31-201-3803
E-mail: thyoo@khu.ac.kr
Office Hours: MW 2:00 - 2:50 p.m., or by appointment
KLAS (Kyung Hee Learning Archive System): https://klas.khu.ac.kr/

Course Description: This course is designed to provide you with an advanced knowledge of the statistical and econometric methods. However, we will not go into all the theories, rather we will reveal to you a rich area of economic applications. Thus emphasis is on intuition, applicability and practices, but not on pure theory. I assume that you have taken basic probability and statistics courses such as managerial statistics, quantitativemethods and/or equivalents. I also assume that you have studied basic mathematics. Hopefully you understand the calculus concepts of differentiation and integration, though these tools are not required for success in this class. To complete the course, you have to be familiar with statistical programs like STATA and/orEViews. Also you definitely need a calculator and a laptop computer for this class.

Textbooks

R. Carter Hill, William E. Griffiths and Guay C. Lim (HGL), *Principles of Econometrics*, John Wiley and Sons,4thEdition, 2011.
William E. Griffiths, R. Cater Hill and Guay C. Lim (EViews), *Using EViews for Principles of Econometrics*, John Wiley and Sons,4thEdition, 2012.

References

Jeffrey M. Wooldridge (Wooldridge), *Introductory Econometrics – A Modern Approach*, South-Western College Pub, 6thEdition, 2015.

EViews Program

You can purchase and download EViews 9.5 Student Version from the following website. http://www.eviews.com/EViews9/EViews9SV/evstud9.html

Though there are some critical limitations, you can alsodownload and use EViews9.5 Student Version Lite which is free from the above website. However, note that Student Version Lite does not allow saving of workfiles or exporting data to other software formats. For more details, visit http://www.eviews.com/home.html

Course Grades

Attendance and Class Participation: 10%
Term Paper and/or Presentation: 20%
Midterm Exam: 30%
Comprehensive Final Exam: 40%

Class Schedule and Course Outline

Week 1: An Introduction to Econometrics

A. Introduction to Econometrics
B. The Econometric Model, Data Types and Sources of Economic Data
C. Writing an Empirical Research Paper

Reading: HGL Ch. 1 & Appendix A and Wooldridge Ch. 1 & Appendix A

Week 2: Mathematical Toolsand Review of Probability Concepts

A. Some Basics
B. Linear and Nonlinear Relationships
C. Random Variables
D. Some Important Probability Distributions

Reading: HGLAppendix A & B and Wooldridge Appendix A & B

Week 3: Probability Primer and Review of Statistical Inference

A. Joint, Marginal, and Conditional Probabilities

B. The Normal Distribution

C. Estimating the Mean of a Population and the Population Variance

Reading: HGL Probability Primer, Appendix B & C and Wooldridge Appendix B

Week 4: Review of Statistical Inference and an Introduction to EViews

A. Interval Estimation

B. Hypothesis Tests about a Population Mean

C. Some Other Useful Tests

D. Starting EViews (or Data Analysis in Excel)

E. Using a Workfile, Quick Menu and EViews (or Excel) Functions

Reading: HGL Appendix C and EViews Ch. 1

Week 5: The Simple Linear Regression Model

A. Estimating the Parameters and Assessing the Least Squares Estimators

B. The Probability Distributions of the Least Squares Estimators

C. Prediction Using EViews

D. Estimating Nonlinear Relationships

E. Regression with Indicator Variables

Reading: HGL Ch. 2, Wooldridge Ch. 2and EViews Ch. 2

Week 6: Interval Estimation and Hypothesis Testing

A. Interval Estimation and Hypothesis Tests

B. Rejection Regions for Specific Alternatives

C. The *p*-value

D. Right-tail Tests, Left-tail Tests and Two-tail Tests

E. Linear Combinations of Parameters

Reading: HGL Ch. 3, Wooldridge Ch. 4and EViews Ch. 3

Week 7: Prediction, Goodness-of-Fit and Modeling Issues

A. Prediction Procedure

B. Measuring Goodness-of-Fit

C. Modeling Issues

D. Polynomial Models, Log-Linear Models and Log-Log Modles

Reading: HGL Ch. 4, Wooldridge Ch. 6 and EViews Ch. 4

Week 8: Midterm Exam

- More details will be announced later.

Week 9: The Multiple Regression Model (MRM)

A. Estimating the Parameters of the MRM
B. Sampling Properties of the Least Squares Estimator
C. Interval Estimation and Goodness-of-Fit
D. Estimating the MRM and Hypothesis Test
E. Polynomial Equations

Reading: HGL Ch. 5, Wooldridge Ch. 3-4and EViews Ch. 5

Week 10: Further Inference in the MRM and Using Indicator Variables

A. Testing Joint Hypothesis
B. Model Specification
C. Poor Data, Collinearity and Insignificance
D. Applying Indicator Variables
E. Indicator Variables with Several Categories

Reading: HGL Ch. 6-7, Wooldridge Ch. 5-7, 9and EViews Ch. 6-7

Week 11: Regression with Stationary Time Series Data

A. Lags in the Error Term: Autocorrelation
B. Finite Distributed Model
C. Serial Correlation
D. Estimating an AR(1) Error Model
E. Autoregressive Distributed Lag Model

Reading: HGL Ch. 9, Wooldridge Ch. 12, and EViews Ch. 9

Week 12: Regression with Nonstationary Time Series Data, VEC and VAR Models

A. Spurious Regressions
B. Unit Root Tests for Stationarity
C. Cointegration Test
D. Estimating a Vector Error Correction Model
E. Estimating a Vector Autoregressive Model

Reading: HGL Ch. 13, Wooldridge Ch. 18 and EViews Ch. 13

Week 13: Panel Data Models

A. A Microeconomic Panel

B. Pooled Least Squares

C. The Fixed Effects Model and the Random Effects Model

D. The Hausman-Taylor Estimator

E. Sets of Regression Equations

Reading: HGL Ch. 15, Wooldridge Ch. 13-14, and EViews Ch. 15

Week 14: Term PaperPresentation

A. Including a Topic, Data, Empirical Model, SimpleAnalysis and Interpretation

B. Less than 10 minutes per person

C. Details on the presentation will be announced later.

Week 15: Comprehensive Final Examand Term Paper Submission

A. More details will be announced later.

B. Structure of the Term Paper

- Less than 1,000 words
- Including a Topic, Purpose of the Study, Literature Review, Data, Model, Empirical Analysis, Interpretation, Contributions Expected and References
- Following bullet points writing style rather than well-crafted essay style