THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

BUSINESS SCHOOL

Course Outline 2017
ECON 321: ADVANCED ECONOMETRICS (15 POINTS)

Semester 1 (1173)

Course Prescription

Development of the linear regression model, its basis, problems, applications and extensions. Attention is also given to techniques and problems of instrumental variables, simultaneous equations, panel data and time-series analysis.

Programme and Course Advice

Prerequisites: ECON 221 Introduction to Econometrics *or* STATS 207 *or* STATS 208 *or* STATS 210 *and* MATHS 108, 150, 153

This course leads on to the econometrics postgraduate courses ECON 721 (Econometrics I), ECON 723 (Econometrics II) and ECON 726 (Microeconometrics). It also complements ECON 322 Applied Econometrics. Students require ECON 301 (Advanced Microeconomics), ECON 311 (Advanced Macroeconomics) ECON 321 before embarking on postgraduate study in Economics. Students should also note that econometrics at this level requires a reasonable level of mathematical expertise.

Goals of the Course

The aim of this course is to provide a good understanding of the properties of econometric models and techniques. Econometrics can be described as the science and art of building and using models in economics. More specifically it is concerned with the use of statistical methods to attach numerical values to the parameters of economic models and also with the use of these models for prediction. The techniques of econometrics consist of a blend of economic theory, mathematical modelling and statistical analysis.

Learning Outcomes

By the end of this course it is expected the student will be able to:

1. derive properties of some important estimators such as least squares, maximum likelihood and instrumental variables in a number of specific modelling contexts of a sort which arise frequently in econometric work;
2. analyse certain classes of single and multiple equation models, including some time series models;
3. demonstrate an ability to explain the essential features of such models by reference to specified definitions and concepts, including notions of identification, specific classes of structural and reduced form estimators, and stationary and non-stationary time series.
4. access and manipulate data electronically using a combination of computer packages, including spreadsheets and statistical software;

Content Outline

Week 1: Review of Matrix, Probability and Statistics;
Weeks 2-4: Introduction and Review of the Linear Regression Model; Heteroskedasticity, Autocorrelation, Generalized Least Squares; Maximum Likelihood
Week 5: Binary Dependent Variable
Week 6: Endogeneity and Instrumental Variables Estimation;
Weeks 7-10: Time Series Econometrics (Autoregressive Moving Average models; Vector auto-regressions; Unit Root and Cointegration testing);
Weeks 11-12: Panel Data Econometrics

This is an indicative timeline only.

Learning and Teaching

This course will be held in semester one. Teaching will be based on three hours of lectures and one tutorial hour per week. The lectures will consist of presentation and discussion of the material. The tutorials will be devoted to consideration of specific questions designed to illustrate and reinforce the material covered in lectures, and will also include computer exercises.

Teaching Staff

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Learning Resources

Recommended Texts:

J.M. Wooldridge, *Introductory Econometrics*, 6th edition, 2016, Cengage Learning. (5th edition should be fine)

J.H. Stock and M.W. Watson, *Introduction to Econometrics*, 3d edition, 2015, Pearson. (2nd edition should be fine)

M. Verbeek, *A Guide to Modern Econometrics*, 3rd edition, 2008, John Wiley & Sons.J.J. Johnston and J. DiNardo, *Econometric Methods*, 4th edition, 1997, McGraw-Hill.

A.H. Studenmund, *A Practical Guide To Econometrics*, 7th edition, 2017, Pearson.

The STATA econometrics package will be used and will be available on the University's student network. Lecture slides will be available on CANVAS weekly.

Assessment

30% of the final grade will be assessed on 3 Assignments (one assignment worth 10%) and 20% on one Test. The remaining 50% of the grade will be from the final examination.
Plussage does ***NOT*** apply.

About two weeks will be allowed for each Assignment.

Learning Outcome	Test	Assignments	Final Examination
1	X	X	X
2	X	X	X
3	X	X	X
4		X	