Unit Outline*

ECON7413/8513

Topics in Applied Econometrics

Semester II 2011
Campus: Crawley

Unit Coordinator
Assistant Professor Leandro M. Magnusson

Business School

www.business.uwa.edu.au

* This Unit Outline should be read in conjunction with the Business School Unit Outline Supplement available on the Students web site http://www.business.uwa.edu.au/students
UNIT DESCRIPTION

Introduction

Welcome to the 2011 Topics in Applied Econometrics Class. This course is concerned with the development of the econometric way of thinking, which will be valuable for your research with economic data. The course deals with theoretical concepts and empirical application. Additionally, it offers the opportunity to develop your programing skills and experience in applied research.

Unit content

This graduate course introduces students to several cross section and time series models: GLS, Instrumental Variables, GMM, ARMA, VAR, Unit Roots and Cointegration. The emphasis is to present the principles of estimation and inference of these models.

The Goal of the unit

The main objective of the course is to provide students with a good understanding of the econometric methodology. Particular emphasis is on the understanding of estimation and inference principles in econometrics through computer simulation.

Learning outcomes

On completion of this unit, you should be able to:

• Understand the econometric methodology principles and use them in your research.
• Develop computational program skills to explore and analyse economic data.
• Read and discuss current research papers.

Educational Principles and Graduate Attributes

In this unit, you will be encouraged to develop the ability to:

• Critically evaluate and solve econometric problems.
• Demonstrate self-management and independent learning skills through the completion of the prescribed biweekly exercises.

TEACHING AND LEARNING RESPONSIBILITIES

Teaching and learning strategies

This course comprises a series of three-hour lectures for Honors and Master students. Success in this unit requires that you understand all of the lectured and reading materials. An essential part of your econometrics training is to solve the assigned problem sets, which will be biweekly posted.

Teaching and learning evaluation

You may be asked to complete two evaluations during this unit. The Student Perception of Teaching (SPOT) and the Students’ Unit Reflective Feedback (SURF). The SPOT is optional and is an evaluation of the lecturer and the unit. The SURF is completed online and is a university wide survey and deals only with the unit. You will receive an email from the SURF office inviting you to complete the SURF when it is activated. We encourage you to complete the forms as your feedback is extremely important and can be used to make changes to the unit or lecturing style when appropriate.
Attendance

Participation in class, whether listening to a lecture or getting involved in other activities, is an important part of the learning process. It is therefore important that you attend classes. More formally, the University regulations state that ‘to complete a course or unit students shall attend prescribed classes, lectures, seminars and tutorials’. Students should not expect to obtain approval to miss more than two classes per unit unless there are exceptional circumstances.

CONTACT DETAILS

We strongly advise students to regularly access their student email accounts. Important information regarding the unit is often communicated by email and will not be automatically forwarded to private email addresses.

<table>
<thead>
<tr>
<th>Unit coordinator/lecturer</th>
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<tbody>
<tr>
<td><strong>Name:</strong></td>
<td>Leandro M. Magnusson</td>
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<tr>
<td><strong>Office:</strong></td>
<td>Room 105 – Business School</td>
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<td><strong>Email:</strong></td>
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<tr>
<td><strong>Phone:</strong></td>
<td>6488 2924</td>
</tr>
<tr>
<td><strong>Consultation hours:</strong></td>
<td>Mondays, 12:00 – 2:00 pm</td>
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<td><strong>Lecture times:</strong></td>
<td>Mondays, 2:00 – 4:45 pm</td>
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<td><strong>Lecture venue:</strong></td>
<td>BUSN: 201</td>
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TEXTBOOK(S) & RESOURCES

The two main references are Davidson & McKinnon and Enders textbooks. However the remaining suggested references are very useful for some particular topics. All the references will be placed in the reserved section of the Business and Science Libraries. Supplemented documents and other relevant papers will be posted at WebCT.

Recommended/required text(s)


Additional Resources & Reading Material


Software

You can use R, Stata, Matlab, or any statistical software package that fits you to do your assignments. I have a personal preference for R.

Prerequisites

You are expected to have good knowledge in matrix algebra, probability and distribution theory, statistical inference, the classical multiple linear regression model (OLS) and the problems related to the assumptions of this model (multicollinearity, heteroscedasticity, serial correlation).

ASSESSMENT MECHANISM

Problem sets: 20%
You can work together, but you have to write your own answers. Submissions to be made in class. No late submissions, please.

Midterm Exam: 30%
The one-hour exam will be held during normal class on October 3rd.

Final Exam: 50%
Date and venue will be announced by the Examination Office.

UNIT SCHEDULE

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<th>Week #</th>
<th>Date</th>
<th>Topic</th>
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<tr>
<td>1</td>
<td>Mon 01/08</td>
<td>Review of Linear Regression Model:</td>
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<td>The Geometry of LS</td>
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<td>The Frisch-Waugh-Lovell Theorem and Applications</td>
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<td>Statistical Properties of OLS</td>
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<td>2</td>
<td>Mon 08/08</td>
<td>Inference in Linear Regression Models I:</td>
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<td>Hypothesis Testing: t-tests, F-tests</td>
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<td>Exact and Large Sample Properties</td>
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<td>Simulation-Based Tests</td>
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<td>3</td>
<td>Mon 15/08</td>
<td>Inference in Linear Regression Models II:</td>
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<td>Confidence Intervals and Regions</td>
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<td>Exact and Asymptotic CI</td>
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<td>Bootstrap CI</td>
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<td>4</td>
<td>Mon 22/08</td>
<td>Generalized Least Squares:</td>
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<td>The GLS estimator and the Feasible GLS</td>
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<td>Applications to Autoregressive and Moving-Average Process Models</td>
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<td>5</td>
<td>Mon 29/08</td>
<td>Instrumental Variables I:</td>
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<td>Estimation and Inference: TSLS case</td>
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<td>Overidentification and Exogeneity Tests</td>
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<td>6</td>
<td>Mon 05/09</td>
<td>Instrumental Variables II:</td>
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<td>Limited Information Maximum Likelihood</td>
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<td>Inference under Weak Instruments</td>
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|    | Mon 12/09 | Maximum Likelihood and Generalized Method of Moments  
|    |          | Estimation Principles  
|    |          | Classical Tests  
| 8  | Mon 19/09 | Limited Dependent Variables  
|    |          | Binary Response Models  
|    |          | Censored and Truncated Data  
|    |          | Sample Selectivity  
| 9  | Mon 03/10 | Stationary Time-Series Models  
|    |          | Autoregressive Models and Moving Average Models  
|    |          | Autocorrelation and Autocovariance  
|    |          | Box and Jenkins Methodology  
|10  | Mon 10/10 | Vector Autogression (VAR)  
|    |          | Granger Causality  
|    |          | Structural VAR  
|12  | Mon 17/10 | Unit Roots and Time Trends  
|    |          | Random Walks  
|    |          | Tests of Unit Roots  
|13  | Mon 24/10 | Cointegration  
|    |          | Spurious Regression  
|    |          | Error Correction Models  
|    |          | Characteristic Roots, Rank and Cointegration  

### Student Guild

Phone: (+61 8) 6488 2295  
Facsimile: (+61 8) 6488 1041  
E-mail: enquiries@guild.uwa.edu.au  
Website: [http://www.guild.uwa.edu.au](http://www.guild.uwa.edu.au)

### Charter of Student Rights and Responsibilities

The Charter of Student Rights and Responsibilities outlines the fundamental rights and responsibilities of students who undertake their education at UWA (refer [http://handbooks.uwa.edu.au/undergraduate/poliprocpolicies/StudentRights](http://handbooks.uwa.edu.au/undergraduate/poliprocpolicies/StudentRights)

### Appeals against academic assessment

The University provides the opportunity for students to lodge an appeal against assessment results and/or progress status (refer [http://www.secretariat.uwa.edu.au/home/policies/appeals](http://www.secretariat.uwa.edu.au/home/policies/appeals)).