TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

VICTORIA

UNIVERSITY OF WELLINGTON

School of Economics and Finance

QUAN 201 INTRODUCTION TO ECONOMETRICS

Trimester One 2007

COURSE OUTLINE

Contact Details

Lecturer/Course Coordinator:	Dr Mohammed Khaled
Office:	RH 322, Phone 463-5787
Office Hours:	Tuesdays and Wednesdays 12.30-1.30
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Class Times and Room Numbers

Lectures:	Tuesdays	10:30-11:20
	Wednesdays	10:30-12:20
Lecture Room:	Government Building Lecture Theatre 1 (GBLT1)	

Tutorials

Two-hour tutorials/computer lab sessions will begin in the **second week** of the trimester. In these sessions, held in a computer laboratory (RWW202), you will get an opportunity to apply the material taught in lectures of the previous week. Each tutorial session will usually include a brief introduction to the tutorial by the tutor. The tutorial exercises accompanied by detailed notes on how to do them can be downloaded from the Blackboard, http://www.blackboard.vuw.ac.nz

You will be allocated to one of these tutorials on the basis of your preferences asked for during the first lecture session. Days and times of the tutorials, and the tutorial allocation will be announced through the Blackboard website on Friday of that week.

Access to the computing laboratories is managed by the Information Technology Services (ITS). Access is unrestricted during weekdays (if the labs are not booked), and available using student ID cards at weekends and after 6pm on weeknights. You will need to enter your ITS *username* (shown on your Confirmation of Study Form) and *password* (initially, your student ID number) to log on. *Make sure that these are operational before the tutorials begin*. For any help in this matter, go to an ITS helpdesk: Rankine Brown building (level 2) or Murphy building (level 2) if at Kelburn Campus, or Government Building (level 1 Law library) or Railway West Wing (level 2) if at Pipitea Campus. Laser printing is possible from all labs; check with an ITS helpdesk for the payment procedure to be followed. You will usually be using your H: drive for your lab work. As a backup, you can also save it on your own floppy (or CD or USB).

Course Objectives

The course is designed to give students experience of using statistical methods important in economics and other business subjects, and to build skill and confidence in the use of those methods.

It provides skills in regression essential for understanding much of the literature of economics, finance, and empirical studies in other areas of business.

We begin with an introduction to the nature of empirical studies in economics and business. The simple regression and multiple regression models are then treated in depth and in a range of applications in both lectures and tutorials. Careful attention is given to model assessment, choosing a model, and departures from the standard assumptions. The tutorial programme has been designed to give hands on experience with these methods. Assignments consolidate this learning process by giving a opportunity to formulate models and interpret empirical results independently of lecturer or tutor intervention.

At the end of the course students should be able to use regression models in many different applications, and to critically examine reported regression results in empirical research in economics and other business studies. They will be able to identify and deal with a number of statistical problems in the analysis of time series and cross-section data, and will have experience of a range of other important statistical methods. Achievement of these objectives is tested in the case of simple regression by the mid-trimester test (just after the mid-trimester break), and in the case of multiple regression by the final examination (held during the Examination Period, 11 – 29 June 2007).

Course Content
A provisional lecture outline appears at the end of this course outline.

Expected Workload
On average, you will need to devote about 11 hours per week to this course:
Lectures: 3 hours
Tutorial/Lab: 2 hours
Reading/Reviewing: 5 hours
Assignments: 1 hour

Readings
The textbook that you should have is *Introductory Econometrics : A Modern Approach*, **3rd Edition, by J. M. Wooldridge, Thomson/South-Western, 2006**. The previous edition is also usable. Other useful (but not required) references are: *Introductory Econometrics with Applications* by Ramu Ramanathan, Dryden-HBJ, 2002, *Undergraduate Econometrics* by R. C. Hill, W. E. Griffiths and G. G. Judge, Wiley, 1997, and *A Guide to Econometrics* by Peter Kennedy, The MIT Press, Cambridge, Massachussetts, 1998.

For statistical computing, the primary program used will be EViews5. All the necessary EViews procedures/commands will be introduced through the tutorial notes and exercises that you will be able to download from the Blackboard, http://www.blackboard.vuw.ac.nz prior to each tutorial. For more information on EViews methods, you can look up the help menu in the EVIEWS menu bar – user's guide.

You will need to have a printed copy of each tutorial assignment at the commencement of that tutorial, but preferably before then so you know about the expected work ahead of time. This is very important; a few spare copies will be available from tutors at the first tutorial, but none after that. Opening a window in a part of your screen to display the tutorial questions is not good enough as it takes up too much time to read it that way; tutors may not be able to help you in following the questions this way. *Tutorials begin in the second week of lectures* (i.e. from the week of 5-9 March). The notes are necessary for the tutorials since they contain
- a description of each tutorial's objectives
- theoretical material relevant for each tutorial
- detailed calculation procedures and descriptions of statistical functions

Materials and Equipment
Electronic pocket calculators are permitted at tests or examinations.

Assessment Requirements

Homework Assignments	20%	*Assignment due dates are indicated in the detailed course schedule appended to this outline*
Mid-trimester Test (1 hour)	30%	*Just after the Mid-trimester break, date to be announced*
Final Exam (2 hours)	50%	*During the Examination Period (11 − 29 June, 2007)*

Any illness or adverse personal circumstances must be notified to the course coordinator − in writing, with medical certificate or relevant evidence − before an assessment. If absence from such assessment is approved, marks for any missed assessment items will be allocated to the Final Exam mark.

Penalties
Unapproved late submission of assignments will incur a penalty of 10% per day up to two days. Unauthorised submissions beyond that will not be marked.

Mandatory Course Requirements
There are no mandatory requirements for this course.

Communication of Additional Information
Announcements, and any changes relating to the course, will be made through the Blackboard website, http://www.blackboard.vuw.ac.nz. Later in the trimester, copies of the test and final examination questions of the year 2006 along with model answers will be made available on the Blackboard.

Faculty of Commerce and Administration Offices
Railway West Wing (RWW) - FCA Student and Academic Services Office
The Faculty's Student and Academic Services Office is located on the ground and first floors of the Railway West Wing. The ground floor counter is the first point of contact for general enquiries and FCA forms. Student Administration Advisers are available to discuss course status and give further advice about FCA qualifications. To check for opening hours call the Student and Academic Services Office on (04) 463 5376.

Easterfield (EA) - FCA/Education/Law Kelburn Office
The Kelburn Campus Office for the Faculties of Commerce and Administration, Education and Law is situated in the Easterfield Building - it includes the ground floor reception desk (EA005) and offices 125a to 131 (Level 1). The office is available for the following:
- Duty tutors for student contact and advice.
- Information concerning administrative and academic matters.
- Forms for FCA Student and Academic Services (e.g. application for academic transcripts, requests for degree audit, COP requests).
- Examinations-related information during the examination period.

To check for opening hours call the Student and Academic Services Office on (04) 463 5376.

General University Policies and Statutes
Students should familiarise themselves with the University's policies and statutes, particularly the Assessment Statute, the Personal Courses of Study Statute, the Statute on Student Conduct and any statutes relating to the particular qualifications being studied; see the Victoria University Calendar or go to www.vuw.ac.nz/policy.

For information on the following topics, go to the Faculty's website www.vuw.ac.nz/fca under Important Information for Students:

- Academic Grievances
- Academic Integrity and Plagiarism
- Student and Staff Conduct
- Meeting the Needs of Students with Impairments
- Student Support

Manaaki Pihipihinga Programme

Manaaki Pihipihinga is an academic mentoring programme for undergraduate Māori and Pacific students in the Faculties of Commerce and Administration, and Humanities and Social Sciences. Sessions are held at the Kelburn and Pipitea Campuses in the Mentoring Rooms, 14 Kelburn Parade (back courtyard), Room 109D, and Room 210, Level 2, Railway West Wing. There is also a Pacific Support Coordinator who assists Pacific students by linking them to the services and support they need while studying at Victoria. Another feature of the programme is a support network for Postgraduate students with links to Postgraduate workshops and activities around Campus.

For further information, or to register with the programme, email manaaki-pihipihinga-programme@vuw.ac.nz or phone (04) 463 5233 ext. 8977. To contact the Pacific Support Coordinator, email pacific-support-coord@vuw.ac.nz or phone (04) 463 5842.

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The following outline gives the topics we expect to cover, some variations possible.

LEC	DATE	LECTURE TOPICS	TUTORIAL TOPICS
1	27 Feb	The nature of econometrics and economic data, some key statistical concepts, steps in empirical economic analysis, causality and regression Assigned Reading: Jeffrey Wooldridge (JW) Chapter 1	*Tutorials begin from the second week. This week, try out your computer logon username and password (if not done already) to avoid any logon problems next week*
2-3	28 Feb	Simple regression, interpretation of coefficients, basic assumptions, the least squares (LS) method (JW sections 2.1-2.3)	
4	6 March	Properties of LS estimators – randomness, linearity, unbiasedness and efficiency (2.5, 3.5), estimating error variance (2.5)	**Tutorial 1** Data handling in EViews, calculate descriptive statistics, draw scatter plots, draw random samples, find critical values and prob values from probability distributions.
5-6	7 March	Consistency of the LS estimator (5.1), probability distribution of LS estimators (4.1, 5.2), interval estimation and testing by the interval method (4.3)	**Assignment 1** given this Wednesday in class
7	13 March	Testing by the *t*-value and *p*-value methods, testing hypotheses with a non-zero null and one-sided alternatives (4.2).	**Tutorial 2** Simple regression estimation, interpretation of estimates, and test of hypothesis using confidence intervals.
8-9	14 March	Goodness of fit (2.3), forecasting (6.4), goodness of forecasts, model evaluation using residuals (6.4), regression through the origin (2.6), and effects of changing units of measurement (2.4, 6.1).	**Assignment 1 due** on Mar 14 by 2.30 pm in your tutor's box

10	20 March	Choice of functional forms of variables, interpretation of the slope coefficients, comparing the fit of models with the dependent variable in different forms, forecasting with the dependent variable in the log form (2.4, 6.2, 6.4)	**Tutorial 3** Tests using critical region and p-value. Measuring and testing goodness of fit. **Assignment 2** given this Wednesday in class
11-12	21 March	Multiple regression, interpretation of coefficients in multiple regression models (3.1), the least squares method (LS) (3.2)	
13	27 March	How other things are held fixed in multiple regression (3.2).	**Tutorial 4** Examine regression residuals. Construct a model non-linear in variables. Forecasting. **Assignment 2 due** on Mar 28 by 2.30 pm in your tutor's box
14-15	28 March	Measures of goodness of fit (3.2, 6.3), properties of LS estimators, coefficient variances and covariances (3.3, 3.4, 3.5), reporting regression results (4.6).	
16	3 April	LS estimation with omission of important variables. (3.3, p. 95-99)	**Tutorial 5** Fit a multiple regression by solving the normal equations, and also by using the relevant EViews command. Simulating the assumption of *other things remaining the same* by multiple regression.
17-18	4 April	LS estimation when unnecessary variables are included (3.3, p. 94-95), multi-collinearity (3.4)	
Mid-trimester break, Test just after it, date to be announced. Use the break to prepare for the Test.			
19	24 April	Distributions of OLS estimators and testing single hypotheses (4.1), Testing a single linear restriction (4.4), Testing a joint hypothesis by separate *t*-tests.	**Tutorial 6** Model selection by using R^2, $\overline{R}^2$ and *MSE* measures, Specification error analysis.
	25 April ANZAC	No lecture.	**Assignment 3** given this Wednesday in class
20	1 May	Testing a joint hypothesis - the WALD F-test, *F*-test of a single hypothesis, $\overline{R}^2$ in relation to the *t*-statistic (4.5).	**Tutorial 7** Multi-collinearity analysis, testing a single linear restriction on coefficients.
21-22	2 May	Alternative tests in large samples - the WALD chi-square test, Lagrange Multiplier tests (5.2); Variable selection methodologies.	**Assignment 3 due** on May 4 by 2.30 pm in your tutor's box

23	8 May	Dummy variables; Dummy variables for seasonal data; intercept and slope dummies. Modelling and testing for structural change. (7.1-7.4, 7.6)	**Tutorial 8** Testing joint hypotheses by using the WALD and LM tests.
24-25	9 May	Violation of assumption on errors: Cross-section data and heteroscedasticity, its consequences (8.1), How to detect heteroscedasticity, Tests (8.3)	**Assignment 4** given this Wednesday in class
26	15 May	Log transformation to alleviate heteroscedasticity; Generalised (or weighted) least squares (8.2, 8.4)	**Tutorial 9** Binary explanatory variables, interpret regression results using such variables.
27-28	16 May	Why is time sequence important? Trends and seasonality, serial dependence of errors (10), LS estimation and its consequences (11.1, 11.2, 11.5, 12.1)	**Assignment 4 due** on May 25 by 2.30 pm in your tutor's box
29	22 May	Testing for serial correlation of residuals (12.2)	**Tutorial 10** Heteroscedastic Models.
30-31	23 May	Estimation procedures when there is serial correlation (12.3-12.6), distributed lag models - lagged dependent variable as a regressor in time series models (10.2, 18.1)	
32	29 May	Estimation of Dynamic Models (18.1)	**Tutorial 11** Serial correlation models.
33-34	30 May	Qualitative (dummy) dependent variables – The linear probability model (7.5, 8.5), The Logit Model (17.1)	