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 1 2006

COURSE OUTLINE

Contact Details

Course Coordinator: Dr Mohammed Khaled,
Room: RH 322, phone number: 463-5787 or ext. 5787
Email Mohammed.Khaled@vuw.ac.nz

Lecturer: Dr Chirok Han,
Room: Rm 318, phone number: 463-6143 or ext: 6143.
Email: Chirok.Han@vuw.ac.nz

Please do not hesitate to see Dr Khaled to express any concerns about lectures and/or tutorials. We will do our best to alleviate any such problems.

Class Times and Room Numbers

Lectures **Government Building Lecture Theatre 2 (GBLT2)**
Times: **Mondays 1:40-2:30 and**
Thursdays 2:40-4:30

An outline of topics to be covered in 2006 appears from Page 7 onwards.

Course Content

Tutorials, Exercises and Notes:

Tutorials will begin in the second week of the trimester. In these sessions, held in a computer laboratory (RW202), you will get an opportunity to apply the material taught in lectures of the previous week. The tutorial exercises accompanied by detailed notes can be downloaded from the Blackboard, **http://www.blackboard.vuw.ac.nz**

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 6-10 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

Later in the trimester, copies of the test and final examination questions of the year 2005 along with model answers will be made available on the Blackboard.

Computer Laboratory Sessions:
You will be allocated to one of the two-hour tutorials that will begin in the second week of the trimester. Days, times and rooms will be advised, and your preferences asked for, in the first week of lectures.

- Assuming that all the machines in the lab are working, each student will have a computer at her or his disposal.
- Students will be assigned to the tutorials on the basis of their preferences indicated during the first lecture session.
- Each tutorial is a self-contained set of exercises examining some questions and data that require application of the methods discussed in lectures of the previous week.
- Each tutorial session will usually include a brief introduction to the tutorial by the tutor.

Laboratory Access and Printing:

- Access to the computing laboratories is managed by the Student Computing Services (SCS). 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 SCS username and password to log on. Make sure that these are operational before the tutorials begin**. For any help in this matter, go to a SCS helpdesk: Rankine Brown building (level 2) or Murphy building (level 2) if at Kelburn Campus, or Government Building (level 1 Law library) if at Pipitea Campus.
- Laser printing is possible from all labs; check with a SCS helpdesk for the payment procedure to be followed.
- You will usually be using your H: drive for your lab work. To save your work on a floppy as well for backup, High Density 3.5" IBM formatted diskettes can be purchased from the Student Notes Centre, the Victoria Book Centre, or from the slot-machines (if available).
- Report any hardware or printing problems to a SCS Helpdesk; they are the ones who can attend to these problems.

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 can download from the Blackboard, **http://www.blackboard.vuw.ac.nz** . For more information on EVIEWS methods, look up the help menu in the EVIEWS menu bar – user's guide.

The final examination period will be held between 12th – 23rd June, 2006.

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. Careful attention is given to model assessment, choosing a model, and departures from the standard assumptions.

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.

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 references are: Introductory Econometrics with Applications by Ramu Ramanathan, Dryden-HBJ, 2002, Basic Econometrics by D. N. Gujarati, McGraw-Hill, 1995, Undergraduate Econometrics by R. C. Hill, W. E. Griffiths and G. G. Judge, Wiley, 1997, Modern Econometrics : An Introduction by R. L. Thomas, Addison-Wesley, 1997, and A Guide to Econometrics by Peter Kennedy, The MIT Press, Cambridge, Massachussetts, 1998.

Assessment Requirements

The marks which may be scored through the trimester are:

Homework Assignments	20	***Four assignments as indicated in the programme below***
Mid-trimester Test	30	***Just after the Mid-trimester break, date to be announced***
Final Exam (2 hours)	50	***Date to be announced by the Examination Office***
Total	**100**	

The final examination period will be held between 12th – 23rd June, 2006.

Terms will be posted on the Blackboard website by Tuesday 6 June 2004.

Penalties

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.

Mandatory Course Requirements

Besides the final examination, the mandatory requirements (‘**terms’** in short) for this course are:

a. Attendance in at least 8 tutorials,
b. Taking the mid-trimester test, and
c. Handing in all the completed assignments by the due dates.

Communication of Additional Information

On average, you will need to devote about 10 hours per week to this course including contact time.

Class Representative
A class representative will be chosen by course participants at the beginning of the course. Class reps play a vital role in the University community, liaising between staff and students to represent the interests of students to the lecturers, and liaising between VUWSA and the class. If you are willing to put yourself forward for this position please advise the course coordinator.

Faculty of Commerce and Administration Offices
Railway West Wing (RWW) - FCA Student Administration Office
The Student Administration 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 office on (04) 463 5376.

Easterfield (EA) - FCA/Law Kelburn Office
The Kelburn Campus Office for the Faculties of Commerce & Administration 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.
- FCA Student Administration forms (e.g. application for academic transcripts, requests for degree audit, COP requests).
- Examinations-related information during the examination period.

Check with the Student Administration Office for opening times (04) 463 5376.

General University Policies and Statutes
Students should familiarise themselves with the University's policies and statutes, particularly those regarding assessment and course of study requirements, and formal academic grievance procedures.

Student Conduct and Staff Conduct
The Statute on Student Conduct together with the Policy on Staff Conduct ensure that members of the University community are able to work, learn, study and participate in the academic and social aspects of the University's life in an atmosphere of safety and respect. The Statute on Student Conduct contains information on what conduct is prohibited and what steps can be taken if there is a complaint. For queries about complaint procedures under the Statute on Student Conduct, contact the Facilitator and Disputes Advisor. This Statute is available in the Faculty Student Administration Office or on the website at: www.vuw.ac.nz/policy/StudentConduct.
The policy on Staff Conduct can be found on the VUW website at:
www.vuw.ac.nz/policy/StaffConduct.

Academic Grievances
If you have any academic problems with your course you should talk to the tutor or lecturer concerned or, if you are not satisfied with the result of that meeting, see the Head of School or the Associate Dean (Students) of your Faculty. Class representatives are available to assist you with this process. If, after trying the above channels, you are still unsatisfied, formal grievance procedures can be invoked.

These are set out in the Academic Grievances Policy which is published on the VUW website: www.vuw.ac.nz/policy/AcademicGrievances.

Academic Integrity and Plagiarism

Academic integrity is about honesty – put simply it means **no cheating**. All members of the University community are responsible for upholding academic integrity, which means staff and students are expected to behave honestly, fairly and with respect for others at all times.

Plagiarism is a form of cheating which undermines academic integrity. Plagiarism is **prohibited** at Victoria.

The University defines plagiarism as follows:

> Plagiarism is presenting someone else's work as if it were your own, whether you mean to or not.

'Someone else's work' means anything *that is not your own idea, even if it is presented in your own style. It includes material from books, journals or any other printed source, the work of other students or staff, information from the Internet, software programmes and other electronic material, designs and ideas. It also includes the organization or structuring of any such material.*

Plagiarism is not worth the risk.

Any enrolled student found guilty of plagiarism will be subject to disciplinary procedures under the Statute on Student Conduct *(* www.vuw.ac.nz/policy/studentconduct) and may be penalized severely.
Consequences of being found guilty of plagiarism can include:

- an oral or written warning
- suspension from class or university
- cancellation of your mark for an assessment or a fail grade for the course.

Find out more about plagiarism and how to avoid it, on the University's website at: www.vuw.ac.nz/home/studying/plagiarism.html.

Students with Disabilities

The University has a policy of reasonable accommodation of the needs of students with disabilities. The policy aims to give students with disabilities an equal opportunity with all other students to demonstrate their abilities. If you have a disability, impairment or chronic medical condition (temporary, permanent or recurring) that may impact on your ability to participate, learn and/or achieve in lectures and tutorials or in meeting the course requirements, then please contact the Course Coordinator as early in the course as possible. Alternatively you may wish to approach a Student Adviser from Disability Support Services to confidentially discuss your individual needs and the options and support that are available. Disability Support Services are located on Level 1, Robert Stout Building, or phoning 463-6070, email: disability@vuw.ac.nz. The name of your School's Disability Liaison Person can be obtained from the Administrative Assistant or the School Prospectus.

Student Support
Staff at Victoria want students' learning experiences at the University to be positive. If your academic progress is causing you concern, please contact the relevant Course Co-ordinator, or Associate Dean who will either help you directly or put you in contact with someone who can.

The Student Services Group is also available to provide a variety of support and services. Find out more at www.vuw.ac.nz/st_services/ or email student-services@vuw.ac.nz.

VUWSA employs two Education Coordinators who deal with academic problems and provide support, advice and advocacy services, as well as organising class representatives and faculty delegates. The Education Office is located on the ground floor, Student Union Building, phone 463 6983 or 463 6984,
email education@vuwsa.org.nz.

Manaaki Pihipihinga Maori and Pacific Mentoring programme (Faculties of Humanities and Social sciences and Commerce and Administration).

- **What:** Academic Mentoring for Maori and Pacific students studying at all levels in the above faculties. Weekly sessions for an hour with a mentor to go over assignments and any questions from tutorials or lectures. Registered students can use the faculty's study rooms and computer suite at any time at Kelburn and Pipitea.
- Mature student and Post grad network

If you would like to register as a mentor or mentee please contact the coordinator.

Where:
Melissa Dunlop, Programme Coordinator, Room 109 D
14 Kelburn Parade: back courtyard - Ph: (04) 463 6015
Email: Maori-Pacific-Mentoring@vuw.ac.nz
Please Note: A mentoring room will also be running at Pipitea Campus starting January. Please contact the Programme Coordinator for details.

CHEERS! HAVE A SUCCESSFUL YEAR.

OUTLINE OF LECTURE TOPICS, 2006

The following outline gives the topics which we expect to cover.

LEC	*DATE*	*LECTURE TOPICS*	*TUTORIAL TOPICS*
1	27 Feb	The nature of econometrics and economic data - what is econometrics - steps in empirical economic analysis - the structure of economic data: cross-sectional, time-series, pooled cross sections, and panel data - causality and "ceteris parbus" **Assigned Reading: Jeffrey Wooldridge (JW) Chapter 1**	**Tutorials begin from the second week. This week, set up your computer logon username and password (if not done already) and try it out to avoid any logon problems next week**
2-3	2 March	Simple regression - definition and basic assumption **JW Chapter 2.1** Least squares method **JW 2.2, 2.3**	
4	6 March	Interpretation of coefficient estimates (**2.3**); Goodness of fit: R-squared (**2.3**); Effects of changing units of measurement (**2.4**);	**Tutorial 1** Calculate basic descriptive statistics - mean, standard deviation, variance, covariance, correlation; Illustrate central limit theorem.
5-6	9 March	Functional forms: non-linear relationships and interpretation of the slope coefficients; Comparing the fit of non-linear models (**2.4**, **6.2**) Properties of least squares estimator: center and precision (**2.5**)	
7	13 March	Estimating error variance (**2.5**): Testing hypotheses (**4.2**)	**Tutorial 2** Simple regression calculations, Interpretation of estimates, and test of hypothesis using confidence intervals. **Assignment 1 given this Thursday in class**
8-9	16 March	More on testing hypotheses (**4.2**) Prediction (**6.4**); Outliers (**Chapter 9, p. 328-330**)	
10	20 March	Multiple regression - interpretation of coefficients in multiple regression models (**3.1**) - basic assumption (**3.1**)	**Tutorial 3** Tests using critical region and p-value. Measuring and testing goodness of fit. **Assignment 1 due this Thursday in class**
11-12	23 March	- least squares method (**3.2**) How other things are held fixed in multiple regression (**3.2**)	
13	27 March	Measures of goodness of fit; penalties for complexity (**3.2, 6.3**).	**Tutorial 4** Examine regression residuals. Construct a model non-linear in variables. Forecasting.

14-15	30 March	Properties of least squares estimators: mean and variance (**3.3, 3.4**); Estimating error variance (**3.4**) Eficiency of OLS (**3.5**)	**Assignment 2 given this Thursday in class**
16	3 April	Distributions of OLS estimators (**4.1**);	**Tutorial 5** Fit a multiple regression by solving the normal equations, and also by using the relevant SHAZAM command. Simulating the assumption of *other things remaining the same* by multiple regression. **Assignment 2 due this Thursday in class**
17-18	6 April	Testing single restriction (**4.2, 4.3, 4.4**)	
Mid-trimester break, Test just after it, date to be announced. Use the break to prepare for the Test.			
19	24 April	Testing a joint hypothesis - the WALD F-test. **JW Chapter 4.5, 4.6**	**Tutorial 6** Model selection by using R^2, $Rbar^2$ and MSE measures. Testing joint hypotheses
20-21	27 April	Alternative tests in large samples - the WALD chi-square and Lagrange Multiplier tests; Variable selection methodologies. **JW Chapter 5.2**	
22	1 May	Specification error analysis - Omission of important variables. **JW Chapter 3.3 (p. 94-99)**	**Tutorial 7** Specification error analysis by using the WALD test; Multi-collinearity analysis. **Assignment 3 given this Thursday in class**
23-24	4 May	Specification error analysis - Inclusion of unnecessary variables; Specification error tests. **JW Chapter 3.3 (p. 94-99)** Multi-collinearity. **JW Chapter 3.4**	
25	8 May	Dummy variables; Dummy variables for seasonal data; intercept and slope dummies. Modelling and testing for structural change. **JW Chapter 7.1-7.4, 7.6**	**Tutorial 8** Use dummy variables and interpret regression results with dummy variables; LM test of specification error. **Assignment 3 due this Thursday in class**
26-27	11 May	Why is time sequence important? Trends and Seasonality. Serial dependence of errors. **JW Chapter 10** OLS estimation and its consequences. **JW Chapter 11.1, 11.2, 11.5, 12.1**	
28	15 May	Testing for serial correlation of residuals. **JW Chapter 12.2**	**Tutorial 9** Serial correlation models.

29-30	18 May	Estimation procedures when there is serial correlation. **JW Chapter 12.3-12.6** Distributed Lag Models - Lagged dependent variable as a regressor in time series models. **JW Chapter 10.2, 18.1**	**Assignment 4 given this Thursday in class**

31	22 May	Estimation of Dynamic Models. **JW Chapter 18.1**	**Tutorial 10** Dynamic Models. **Assignment 4 due this Thursday in class**
32-33	25 May	Violation of assumption on errors: Cross-section data and heteroscedasticity, its consequences. **JW Chapter 8.1** How to detect heteroscedasticity, Tests. **JW Chapter 8.3**	
34	29 May	Log transformation to alleviate heteroscedasticity; Generalised (or weighted) least squares. **JW Chapter 8.2, 8.4**	**Tutorial 11** Heteroscedastic Models.
35-36	1 June	Qualitative (dummy) dependent variables – The linear probability model. **JW Chapter 7.5, 8.5** The Logit and Probit models. **JW Chapter 17.1**	