

School of Economics and Finance

## **ECON 301 ECONOMETRICS**

Trimester One 2012

### **COURSE OUTLINE**

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#### **Names and Contact Details**

Course coordinator & lecturer:

Prof. Dean Hyslop

Office:

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Office hours: Thursday 2.30 – 4.30pm or by appointment

#### **Trimester Dates**

Teaching Period: Monday 5 March – Friday 8 June

Study Period: Monday 11 June – Thursday 14 June

Examination Period: Friday 15 June – Wednesday 4 July (inclusive)

#### **Course Delivery**

This course will be delivered by two lectures per week, and a tutorial in 8 of the 12 weeks (likely in weeks 2-4, 6, 8-11).

#### **Class Times and Room Numbers**

##### Lectures:

Monday, Thursday: 11.30am – 12.20pm, RWW128

##### Tutorials:

Tutorials will be held in the Railway West Wing (RWW) building computer labs, as follows:

Thursday: 12.40 – 1.30pm, and 1.40 – 2.30pm, RWW202

Student allocation to tutorials will be based as best as possible on student preferences expressed during the first lecture. To access the student computer labs, you will need to set up your username and password with the Student Computer Services (SCS).

## Course Content

Econometrics is concerned with the construction, estimation, testing, and use of economic and financial models. Sound applied econometric work requires that careful attention be paid to econometric theory, as well as to the theory on which the empirical model is based and the construction of data. To understand econometrics, mathematical reasoning and theory is required. But since the ultimate goal is actual estimation and evaluation, hands-on experience with data and econometric software is also essential. For this purpose, the econometric software package *R* will be used: *R* is freeware, and can be downloaded from the following website: <http://www.r-project.org/>.

Introductory material covered in QUAN 201 will be reviewed and expanded into more advanced level, in terms of both the econometric theory and the level of complexity of the models. Advanced econometric topics may include generalized least squares, instrumental variables methods, stationary time series models, estimation of simultaneous equation systems, non-linear least squares, maximum likelihood estimation, models with limited dependent variables, and models with panel data. Furthermore:

- Matrix algebra specifications will be used. By using matrix algebra, the fundamental results in econometrics can be presented in an elegant and compact manner.
- Some computer programming will be done in implementing econometric theory. Programming econometric formulas will enhance students' understanding of formulas. Through programming, theoretical results that have not been incorporated as automatic commands in a software package can be implemented in empirical work.

## Course Learning Objectives

By the end of this course, students should be able to

- C1 use matrix algebra to specify and derive characteristics of linear regression models
- C2 apply Generalised Least Squares
- C3 apply instrumental Variable (IV) estimation
- C4 set out the identification issues in simultaneous equations models, and estimate such models
- C5 apply Non-linear Least Squares and Maximum Likelihood Estimation
- C6 apply common binary choice and other limited dependent variable models
- C7 apply common panel data models
- C8 use econometric software to implement the above techniques in appropriate situations

## Readings

### Textbook:

There is *no required text* for this course. However, I find the following a good reference text: Wooldridge, J M, *Introductory Econometrics: A Modern Approach*, 4<sup>th</sup> edition, Thomson/South-Western, 2009.

### *Other useful references include*

Griffiths, W E, R C Hill, and G G Judge, *Learning and Practicing Econometrics*, John Wiley & Sons, 1993.

Johnston, J, and J. DiNardo, *Econometric Methods*, 4<sup>th</sup> edition, McGraw Hill, 1997.

Verbeek, M, *A Guide to Modern Econometrics*, 3<sup>rd</sup> edition, John Wiley & Sons, 2008.

The course topics are as follows (with Wooldridge text references):

- Generalised least squares methods for Heteroskedasticity and Autocorrelation – chapter 8 (mainly 8.1-8.4) and chapter 12 (mainly 12.1-12.3)
- Instrumental variables methods – chapter 15 (mainly 15.1-15.5)
- Simultaneous equations systems – chapter 16 (mainly 16.1-16.3)
- Maximum likelihood estimation of non-linear models – appendix C (C.4)
- Binary choice and limited dependent variables models – chapter 17 (mainly 17.1, 17.2, 17.4, 17.5)
- Panel data models – chapters 13 & 14 (time permitting)

## Assessment Requirements

Assignments	<b>20%</b> (Four @ 5% each); C1-C8.
Mid-trimester test	<b>20%</b> , in lecture <b>Thursday 3 May</b> , 50 minutes; C1-C4.
Final examination	<b>60%</b> , during the examination period, 2 hours; C1-C8.

If you are not able to sit the mid-trimester test for any reason, then your final examination will be weighted 80% towards the final grade. Assignments may include both problem solving and computer tasks.

### Quality Assurance Note

Your assessed work may also be used for quality assurance purposes, such as to assess the level of achievement of learning objectives as required for accreditation and audit purposes. The findings may be used to inform changes aimed at improving the quality of FCA programmes. All material used for such processes will be treated as confidential, and the outcome will not affect your grade for the course.

## Expected Workload

ECON 301 is a 15-point course, and on the basis of VUW having designated one point = 10 hours work, expected work load would total 150 hours. If that workload were spread over 12 weeks, the expected load would average around 12.5 hours per week. This would involve attending classes, plus reading, studying and completing assignments. The 12.5 hours would of course vary for individual students, depending on the student's previous knowledge and understanding, and the final grade to which the student aspires.

## Materials and Equipment

If you have your own computer, I strongly recommend that you download a copy of the econometric software package *R* from the following website: <http://www.r-project.org/>. You can then configure it as you prefer, and will be able to use it when and where you please.

The use of computers and calculators will not be required for either the midterm or final examination.

## Examinations

Students who enrol in courses with examinations are obliged to attend an examination at the University at any time during the formal examination period.

The final examination for this course will be scheduled at some time during the period from Friday 15 June – Wednesday 4 July (inclusive).

### **Penalties**

Late submission of assignments will not be accepted without prior approval.

### **Mandatory Course Requirements**

There are no mandatory requirements for this course.

### **Class Representative**

A class representative will be elected in the first class, and that person's name and contact details made available to VUWSA, the Course Coordinator and the class. The class representative provides a communication channel to liaise with the Course Coordinator on behalf of students.

### **Communication of Additional Information**

Additional information or information on changes will be conveyed to students through the VUW Blackboard website.

### **Withdrawal from Course**

1. Your fees will be refunded if you withdraw from this course on or before Friday 16 March 2012.
2. The standard last date for withdrawal from this course is Friday 18 May. After this date, students forced to withdraw by circumstances beyond their control must apply for permission on an '*Application for Associate Dean's Permission to Withdraw Late*' including supporting documentation

The application form is available from either of the Faculty's Student Customer Service Desks.

**For the following important information follow the links provided:**

#### **Academic Integrity and Plagiarism**

<http://www.victoria.ac.nz/home/study/plagiarism.aspx>

#### **General University Policies and Statutes**

Find key dates, explanations of grades and other useful information at

[www.victoria.ac.nz/home/study](http://www.victoria.ac.nz/home/study)

Find out about academic progress and restricted enrolment at

<http://www.victoria.ac.nz/home/study/academic-progress.aspx>

The University's statutes and policies are available at [www.victoria.ac.nz/home/about/policy](http://www.victoria.ac.nz/home/about/policy), except qualification statutes, which are available via the Calendar webpage at <http://www.victoria.ac.nz/home/study/calendar.aspx> (See Section C).

Further information about the University's academic processes can be found on the website of the Assistant Vice-Chancellor (Academic) at [www.victoria.ac.nz/home/about\\_victoria/avcacademic/default.aspx](http://www.victoria.ac.nz/home/about_victoria/avcacademic/default.aspx)

**AVC (Academic) Website: information including: Conduct, Academic Grievances, Students with Impairments, Student Support**

[http://www.victoria.ac.nz/home/about\\_victoria/avcacademic/Publications.aspx](http://www.victoria.ac.nz/home/about_victoria/avcacademic/Publications.aspx)

**Faculty of Commerce and Administration Offices**

<http://www.victoria.ac.nz/fca/studenthelp/>

**Te Putahi Atawhai**

**Maori and Pacific Mentoring Programme**

<http://www.victoria.ac.nz/tpa/>