TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

VICTORIA
UNIVERSITY OF WELLINGTON

School of Economics and Finance

# QUAN 203 ECONOMETRIC THEORY FOR ECONOMICS AND FINANCE

Trimester 2 2009

## COURSE OUTLINE

**Lecturer/Course coordinator**

John Randal, RH308, phone 463-5558 (coordinator), email john.randal@vuw.ac.nz
Office hours by appointment.

**Trimester Dates**

Teaching Period: Monday 13 July to Friday 16 October 2009
End of Year Study Period: Monday 19 October to Monday 26 October 2009
Examination Period: Tuesday, 27th October to Saturday 14 November 2009 (inclusive)

**Note: Students who enrol in courses with examinations should be able to attend an examination at the University at any time during the formal examination period.**

**Withdrawal dates:**

Information available via
https://www.victoria.ac.nz/home/admisenrol/payments/withdrawlsrefunds.aspx

**Class times**

- Lectures: Monday, Tuesday and Friday, 9:30-10:20, GBLT4
- Tutorial: One hour from Monday 10:30-11:20, 11:30-12:20, 12:40-13:30 starting week 2. Sign up online at http://signups.victoria.ac.nz/

**Course website**

http://www.blackboard.vuw.ac.nz If QUAN203 does not appear in your list of courses, please contact John via email, with your SCS username.

**Course content**

Below is a tentative schedule for the course. Changes to the schedule will be advised via Blackboard. The main goal of the course is to enable students to be more comfortable with common mathematical and statistical ideas for further study in economics, finance, and econometrics. We intend to achieve this goal by covering the following topics:

| Week | Topic |
|---|---|
| 1 | Mathematics review |
| 2 | Introduction to probability theory |
| 3-4 | Discrete random variables and expectation |
| 4-5 | Continuous random variables and expectation |
| 6 | Expectation of functions of random variables |
| *Mid-trimester break (2 weeks)* | |
| 7 | Multivariate distributions |
| 8 | Conditional random variables and expectation |
| 9 | Method of moments estimation |
| 10 | Maximum likelihood estimation |
| 11-12 | Ordinary least squares regression |

Lecture materials will be supported by practice in the tutorials, and through the assignments. Specific tutorial and assignment exercises will be distributed via Blackboard. You should try the problems in advance of attending the tutorial. The assignment will allow further practice of these skills.

**Course learning objectives**

We aim to develop essential background econometric theory (including mathematics and statistics) for progression into third year econometrics, and honours in econometrics, economics, or finance. Assessment will test students' knowledge and appreciation of these key concepts.

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

- explain and use formal intermediate level probability theory
- comprehend and apply discrete and continuous random variables in analysis
- analyse probability distributions and models using matrix algebra
- comprehend and apply multivariate distributions in analysis
- understand and make use of conditional random variables and expectations
- derive ordinary least squares, method of moments *and generalised method of moments estimators**, and their statistical properties
- *understand the basis of cross-section data and heteroscedasticity, and design statistical models for these situations.**

* *If time permits*

**Course delivery**

Three lectures and one tutorial per week.

**Tutorials**

To view and sign up to tutorials go to https://signups.victoria.ac.nz/. You should attend one tutorial per week. Tutorial sign up closes on Friday 17 July at 5.00pm.

Tutorial exercises will be distributed in class, and via Blackboard. It is recommended that you try the exercises before you attend the class.

**Assignments**

Regular assignments will be issued (roughly fortnightly) throughout the course. These do not contribute to your final mark, but will contribute greatly to your learning. Submission of them is *strongly recommended*.

Each assignment, there will be one *challenge* question, which will be difficult. If correctly solved, a 1% bonus mark will be added to your grade. In addition, each assignment which has been reasonably attempted (as defined on each assignment) will also attract a 1% bonus mark.

**Expected workload**

A 22 point course has an expected total workload of 220 hours. Deducting the 36 lecture hours, and 11 tutorial hours, this leaves 173 hours. From this you might allocate 20 in preparation for the exam, and 10 in preparation for the term test, leaving 143. Spread over 11 weeks (weeks 2 to 12), this leaves 13 hours per week.

A suggested way of allocating this time is to spend two hours preparing for each lecture (by reviewing old material and the published lecture notes), two hours reviewing the lecture after its delivery, two hours preparing for the tutorial by attempting the problems, and the remaining time preparing the weekly assignment for submission.

**Group Work**

There will be no group work for this course. All submitted assignment material must be the author's own work, and is subject to the university's Statute on Student Conduct, which in particular, forbids plagiarism.

**Readings**

Lecture notes will be provided via Blackboard. Reading these in advance of the lecture, and preparing any preliminary material (i.e. previous lectures) is a very good idea. The recommended text book for the course is: Hogg and Tanis, *Probability And Statistical Inference 7/e*, Pearson, and this is available for $110 from Vic Books. There are also many textbooks on mathematical statistics in the library which do cover relevant material.

The VUW library has a web page that contains detailed information about library resources and has links to other sites. Its URL is http://www.vuw.ac.nz/library

**Materials and Equipment**

A calculator will be required for completion of this course. Any calculator used for the prerequisites of this course will be appropriate.

**Assessment Requirements**

Bonus marks may be obtained by completing the assignments and challenge questions (see above). These are in addition to the following marks for all students:

A two hour test covering lectures 2–18 (Tuesday 14 July to Friday 21 August inclusive) will be held at 6:30pm on Wednesday 9 September. *This will be worth 40% of your final grade.*

The final examination for this course will be scheduled at some time during the period from Tuesday 27 October to Saturday 14 November 2009. *This will be worth the remaining*

*60% of your final grade.* Reduced emphasis will be placed on content in the first half of the course.

*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.*

**Examinations**

(As above) the final examination for this course will be scheduled at some time during the period from Tuesday 27 October to Saturday 14 November 2009 (inclusive).

**Penalties**

Late assignments will not be marked.

**Mandatory Course Requirements**

Attendance at the test.

**Communication of Additional Information**

Course notices will generally be relayed in class, and put on Blackboard.

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Additional information will be conveyed to students via Blackboard. Sometimes you will also be sent emails. These will be sent to the address that you supplied with your enrolment unless you advise otherwise.

**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**
http://www.victoria.ac.nz/home/about/policy/academic.aspx

**Faculty of Commerce and Administration Offices**
http://www.victoria.ac.nz/fca/studenthelp/Contactus.aspx

**Manaaki Pihipihinga Programme**
http://www.victoria.ac.nz/st_services/mentoring