TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA
UNIVERSITY OF WELLINGTON

School of Economics and Finance

FINA 304 FINANCIAL ECONOMETRICS

Trimester One 2012

COURSE OUTLINE

Course coordinator, lecturers and administrator

John Randal, RH331, 463 5558, john.randal@vuw.ac.nz (course coordinator)
Leigh Roberts, RH 323, 463 5937, leigh.roberts@vuw.ac.nz
Bonnie Riley, RH 321, 463 5380 , bonnie.riley@vuw.ac.nz (administrator)

Dr Roberts will teach the first half of the course, Dr Randal the second.

Class times and rooms:

Lectures: Monday and Friday, 1440-1530, GB LT4
Tutorials: Tuesday, 1030-1120, RWW202
Tuesday, 1130-1220, RWW202

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)

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.

Course Learning Objectives

1. document properties of various types of financial data and analyse them with the appropriate econometric tools
2. understand and apply maximum likelihood estimation
3. estimate ARCH and GARCH models

Course delivery

This course will be delivered by two lectures per week and a tutorial in 8 out of the 12 weeks.

Readings

The text is: Stephen J. Taylor, *Asset Price Dynamics, Volatility, and Prediction*, Princeton University Press, 2005, ISBN 0-691-11537-0.
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

Additional notes will complement the textbook for the first two lectures. These notes will be posted to blackboard before the start of teaching, and should be brought to the first lecture.

Course content

Chapter references are to Taylor. You should prepare for each lecture by skim-reading the indicated textbook sections - do not try to read them in detail until *after* the lecture. Content and timing of the course may differ slightly from those shown below.

Date	Lecture	Topic	Text	Tut	
5 Mar	1	Prices and returns	2.1-2.6		
9 Mar	2	Returns and volatility	Notes		
12 Mar	3	Random variables and their properties	3.1-3.2		
16 Mar	4	Time series; white noise, ACF, stationarity	3.3-3.4		
19 Mar	5	The random walk model		T	
23 Mar	6	AR(1), MA(1) process	3.5		
26 Mar	7	ARMA(1,1), MLE for ARMA models	3.5-3.8		
30 Mar	8	Stylized facts: moments, calendar effects	4.1-4.6		
2 Apr	9	Distribution of returns	4.7-4.8	T	
6 Apr	10	NO LECTURE: Good Friday			
		Mid -trimester break, Monday 9 April - Friday 20 April			
23 Apr	11	Autocorrelation of returns, transformed returns	4.9-4.10	T	
27 Apr	12	Random Walk Hypothesis, variance ratio tests	5		Ass 1
30 Apr	13	Conditional heteroscedasticity	9.1	T	
4 May	14	ARCH(1)	9.2		
7 May	15	GARCH(1,1)	9.3		Test
11 May	16	GARCH(1,1) model ctd	9.3-9.4		(week)
14 May	17	MLE for GARCH models	10.4	T	
18 May	18	GARCH model building	10.6		
21 May	19	Continuous time stochastic processes	13.1-13.3	T	
25 May	20	Visualising Brownian motion	13.7		
28 May	21	Itô's Lemma, GBM and returns	13.3	T	
1 June	22	Black-Scholes equation, implied volatility	14.1-14.4		
4 June	23	NO LECTURE: Queen's birthday		T	
8 June	24	The Ornstein-Uhlenbeck process	13.3		Ass 2
		Examination, see http://www.victoria.ac.nz/timetables/index.aspx			

The following chapters are not covered in this course: 6-8, 11-12, 15-16. Lecture materials will be supported by practice in the lab tutorials, and through tutorial assignments.

Tutorial problems

There will be a tutorial problems assigned in advance of each tutorial. These do not count towards assessment, but will be an important part of your preparation for the test and exam. The tutorial schedule, and tutorial problems, will be distributed via Blackboard.

Expected workload

In weeks when there is a tutorial you should spend 3 hours in class per week (2 lectures and 1 tutorial); in the remaining weeks you should spend 2 hours in class per week (2 lectures). You should expect to spend an additional 6-8 hours per week reading, studying and completing assignments. Overall it is expected that you will spend approximately 150 hours on completing this course.

Materials and Equipment

It will be useful for you to have access to the statistical software R on your personal computer. Bring a memory stick to John and he will provide you with an installation file. Alternatively, if bandwidth is not an issue, download it from http://www.r-project.org/.

Assessment Requirements

- There will be two practical assignments. The first will be due at lecture 12, on Friday 27 April. The second will be due at lecture 24, on Friday 8 June. *Each assignment is worth 10% of your final grade.*
- A two-hour in-term test will be held in Week 8, and will cover content from lectures 1 to 12 inclusive. *This test is worth 40% of your final grade.*
- The final exam will be two hours. *This exam is worth the remaining 40% of your final grade.*

All assessment addresses CLO1 and 2. CLO3 is assessed in the second assignment and the exam.

Your assessed work may 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.

Penalties

Late assigenements will have 10% deducted per day for the first 5 weekdays, and will be given 0 thereafter. Extensions must be negotiated by close of business Friday preceding the due date.

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 10 June - Saturday 2 July 2011.

Group work

None

Mandatory course requirements

None

Class representative

A class representative will be elected in the first week, whose name and contact details will be 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 will be conveyed to students via Blackboard and/or email.

Emails may be sent to the address that you supplied with your enrolment; but they may also be sent to your SCS email address, which is your official university email address. You should keep an eye on both email addresses.

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
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

The University's statutes and policies are available at
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 (See Section C)

Further information about the University's academic processes can be found on the website of the Assistance Vice-Chancellor (Academic) at
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

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/