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 1, 2016
DRAFT COURSE OUTLINE

Lecturer Leigh Roberts, RWW 214, phone 463-5937 (coordinator)
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Administrator Debbie Turner, RWW 111, phone 463-6386
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Lecture times Tuesday 13.40 - 14.30, GBLT 3
Wednesday 13.40 - 14.30, GBLT 3

Tutorials Tutorials are held in weeks 2-3, 5-7, 9-10 and 12.

Tutorial times TBA

Trimester dates

Teaching Period: Monday 29 February to Friday 3 June 2016
Study Period: Monday 6 June to Thursday 9 June 2016
Examination Period: Friday 10 June to Wednesday 29 June 2016 (inclusive)

Withdrawal from the course

Your fees will be refunded if you withdraw from this course on or before Friday 11 March 2016.

The standard last date for withdrawal from this course is Friday 13 May 2016. After this date, students forced to withdraw by circumstances beyond their control must apply for permission on the form 'Application for Associate Dean's permission to Withdraw Late', and include supporting documentation. This form is available from either of the Faculty's Student Customer Service Desks, or online.

Prescription

This course develops tools for analysing financial time series and estimating and testing simple finance models. Topics include the predictability of asset returns; The Capital Asset Pricing Model; and generalised autoregressive conditional heteroskedastic models.

Course Learning Objectives

1. document properties of various types of financial data and analyse them with the appropriate econometric tools;
2. apply classical regression models to CAPM;
3. apply extensions of classical regression models to finance;
4. understand and apply maximum likelihood estimation;
5. estimate ARCH and GARCH models;
6. estimate regime switching models.

Course Content

The content and timing of the course, and the order of presentation, may differ slightly from the information given in the following table.

FINA 304 Date, 2016	Week	Theme	Project	Ass set	Ass due	Tuts
29 Feb - 4 March	1	Introduction, statistical background	1			
7 - 11 March	2	Background, return, volatility				Tut
14 - 18 March	3	stylised facts, frequency		2		Tut
21 - 23 March	4	ACFs, long memory			1	
First break, 1 week: Thurs 24 March - Wednesday 30 March 2016						
31 March - 1 April	4	AR(1), MA(1)		3		
4 - 8 April	5	ARMA, ARIMA, stationarity			2	Tut
11 - 15 April	6	Kalman Filter				Tut
18-22 April	7	Term structure	App	4	3	Tut
Second break, 1 week: Monday 25 April - Friday 29 April 2016						
2 - 6 May	8	GARCH				
9 - 13 May	9	GARCH, long memory			4	Tut
16 - 20 May	10	GARCH, regime switching				Tut
23 - 27 May	11	Regime switching, wavelets	Due			
30 May - 3 June	12	Revision				Tut

Under the Project column, 'App' denotes approval of the project topic by the coordinator.

Assignments are set in the week indicated above under the 'set' column, generally to be handed in by 5 pm on the Friday in the week indicated under the 'due' column. The exception to this is Assignment 1, which will be due at 5 pm on Wednesday 23 March, because of the Easter holiday.

Assignments and project are to handed in to a numbered box, the number and location of which will be notified on blackboard early in the course.

The topic for the project may be chosen by the student, but is subject to approval by the coordinator by email no later than Friday midnight on 22 April 2016, the end of week 7. Students are however encouraged to think about topics from inception of the course, and to seek the coordinator's approval of their topic well before the deadline.

Those students not wishing to choose to their own project topic will be asked to complete a 'standard' project using the Kalman filter to model the term structure of interest rates, data and R code for which are available from the coordinator. The decision to choose the standard project should also be communicated to the coordinator by Friday 22 April 2016, the end of week 7.

The Project is due by the end of week 11, Friday 27 May 2016.

Submitted projects should list the approximate number of words, and have page numbers inserted. Penalties may be imposed if the length of work submitted does not lie within the recommended range of the number of words.

Penalties are imposed for late submission of assignments and projects: see the Penalties section below.

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.

Readings

Lecture notes and readings will be made available on Blackboard.

It is *not* recommended that you purchase any text books for this course.

Parts of the course will be based on Taylor (2005):
S J Taylor, *Asset Price Dynamics, Volatility, and Prediction*, Princeton University Press, 2005.

This book is available as an e-book in the VUW library.

Materials and Equipment

A calculator may be needed for tutorials and assignments, and may also be needed for the final exam. The calculator must be able to work out powers, and have the exponential and the logarithmic functions. In addition, the calculator must be silent and have its own power source.

More advanced calculators, such as graphics and programmable calculators, are not needed for this course. Programmable calculators must be reset prior to the exam.

If you do not already have a calculator, talk to the lecturer before you buy one. A basic calculator suitable for the course should cost no more than about $20.

The project and assignments will involve the use of the computer suite R, available to students in RWW 202. No previous knowledge of R is assumed. If they wish, students may download R onto their own computers: it is open-source software, available free from http://www.r-project.org/. Particular R packages to be used may include rugarch and dlm.

Assessment
- 40% Four assignments, each worth 10%
- 20% Project, of the equivalent of approximately 2000 words, to be submitted by the end of week 11, Friday 27 May 2016.
- 40% Two hour final examination, during the examination period, Friday 10 June - Wednesday 29 June 2016 (inclusive).

All asssessment addresses CLOs 1, 4 and 5. The assignments address CLOs 2, 3 and 6.

The assessment handbook will apply to all VUW courses: see
http://www.victoria.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf

Penalties

Except in the matter of illness (for which a doctor's certificate is required), or other highly exceptional circumstances, marks for projects and assignments are reduced by 5% for each day late.

Failure to obtain approval by email of the project topic by the required date may cause the mark for the project to be reduced by 5% for each week late.

Projects and assignments appearing to be copied will be marked as zero. Appeals on marking may be made to the coordinator in the first instance, and to the Head of School in case of further disagreement.

Use of Turnitin

Student work provided for assessment in this course may be checked for academic integrity by the electronic search engine http://www.turnitin.com. Turnitin is an on-line plagiarism prevention tool which compares submitted work with a very large database of existing material. At the discretion of the Head of School, handwritten work may be copy-typed by the School and subject to checking by Turnitin. Turnitin will retain a copy of submitted materials on behalf of the University for detection of future plagiarism, but access to the full text of submissions will not be made available to any other party.

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 following period:

Friday 10 June - Wednesday 29 June 2016 (inclusive)

Mandatory course requirements

Submission of the essay and attendance at the exam are compulsory.

If you cannot complete an assignment or sit a test or examination, refer to
www.victoria.ac.nz/home/study/exams-and-assessments/aegrotat

Class representative

A class representative will be elected in the first class, 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.

Student Feedback

Student feedback on University courses may be found at
www.cad.vuw.ac.nz/feedback/feedback_display.php

Link to general information

For general information about course-related matters, go to
http://www.victoria.ac.nz/vbs/studenthelp/general-course-information

Note to Students

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 academic audit. The findings may be used to inform changes aimed at improving the quality of VBS programmes. All material used for such processes will be treated as confidential, and the outcome will not affect your grade for the course.