

VICTORIA INTERNATIONAL APPLIED FINANCE PROGRAMME
School of Economics and Finance

MMAF524 FINANCIAL ECONOMETRICS

Trimester One 2010

COURSE OUTLINE

Contact Details

The course coordinator is Professor Vance L. Martin. Preferred contact is by email. The email address is: vance@unimelb.edu.au.

The administrator for the course is Anna Potts. Email: Anna.Potts@vuw.ac.nz, phone (04) 463 6148.

Block Release Times

Friday 3rd September through the morning of Sunday 5th September, inclusive.
and Friday 29th October through the **afternoon** of Sunday 31st October, inclusive.

Classes will take place in KK216 on the Kelburn Campus. A detailed schedule of each block release will be supplied closer to the September and October sessions. **Attendance for all sessions of both block releases is compulsory.**

Trimester Dates

Study/Teaching Period: Monday 12 July to Friday 31 October 2010

Final Assignment Due: 14 November 2010

Course Delivery

The contact hours of the course will be during the two block releases detailed above. During the rest of the trimester, students will be expected to be engaged in self directed study using their textbook and material posted on Blackboard, and completing assignments which will be posted on Blackboard. **Attendance at all sessions of both block releases is compulsory.**

Course Learning Objectives

Students should be able to:

- Apply quantitative tools to model, estimate and forecast financial variables
- Analyse the statistical properties of financial prices and returns;
- Evaluate models of risk based on the Capital Asset Pricing Model and variants assuming non-normal return processes;
- Analyse recent advances in unit root and co-integration methods in modelling the term structure of interest rates and asset price bubbles;

- Describe the strengths and limitations of alternative quantitative methods by reproducing existing results using computer skills and mathematical modelling techniques, in conjunction with a range of financial data set;
- Perform sensitivity analyses on proposed models, which should include the application of alternative distributional specifications to model risk.

Course Content

This course is concerned with the application of quantitative tools to model, estimate and forecast financial variables. Topics considered include: the analysis of the properties of financial data with an emphasis on non-normality and non-stationarity; the application of estimation methods including unit roots and co-integration, to the rational valuation model of share prices; the application of the GARCH class of models to estimate volatility and to test the capital asset pricing model.

BLOCK RELEASE ONE	BLOCK RELEASE TWO
<p style="text-align: center;"><u>Day One</u></p> <p style="text-align: center;">Properties of Financial Data; Linear Regression Models</p> <p style="text-align: center;">Topics</p> <p style="text-align: center;">Prices & returns, Summary statistics, Predictability; Estimation, Diagnostics, Extensions</p> <p style="text-align: center;">Applications</p> <p style="text-align: center;">Interest rates, equity prices; CAPM, Event studies</p>	<p style="text-align: center;"><u>Day One</u></p> <p style="text-align: center;">Forecasting Financial Models</p> <p style="text-align: center;">Topics</p> <p style="text-align: center;">Ex Post and Ex ante Forecasting, Univariate & Multivariate Models</p> <p style="text-align: center;">Applications</p> <p style="text-align: center;">Share Prices; Interest Rates</p>
<p style="text-align: center;"><u>Day Two</u></p> <p style="text-align: center;">Dynamic Financial Models; Nonstationary Financial Models</p> <p style="text-align: center;">Topics</p> <p style="text-align: center;">Autoregressive, Moving average, Dynamic Regressions, Vector Autoregressions; Unit roots, Long-range Dependence, Cointegration, VECMs</p> <p style="text-align: center;">Applications</p> <p style="text-align: center;">PV Model, Forward Market Efficiency Term Structure of interest Rates</p>	<p style="text-align: center;"><u>Day Two</u></p> <p style="text-align: center;">Modelling Risk and Volatility</p> <p style="text-align: center;">Topics</p> <p style="text-align: center;">GARCH, MGARCH, TGARCH</p> <p style="text-align: center;">Applications</p> <p style="text-align: center;">Time-Varying Risk, Time-Varying Betas, Leverage Effects</p>
<p style="text-align: center;"><u>Day Three</u></p> <p style="text-align: center;">Nonstationary Financial Models continued</p> <p style="text-align: center;">Topics</p> <p style="text-align: center;">Unit roots, Long-range Dependence, Cointegration, VECMS</p> <p style="text-align: center;">Applications</p> <p style="text-align: center;">Present value model, Term structure of Interest Rates</p>	<p style="text-align: center;"><u>Day Three</u></p> <p style="text-align: center;">Computer Based Test - Open-Book</p> <p style="text-align: center;">Topics</p> <p style="text-align: center;">Based on material from Block 1 and 2.</p> <p style="text-align: center;">Applications</p> <p style="text-align: center;">Computer-based test which uses the computer software EViews.</p>

Expected Workload

Total average workload of 200 hours. During the approximately 6 weeks of term prior to each block release, students will need to allow about 14 hours per week for study, research and preparation of assignments for this course. The two block courses together involve approximately 40 hours of work.

Reading and Reference Material

A full set of lecture notes and exercises are included on Blackboard as well as supplied in print.

Supplementary Finance References

The following references provide additional background material on theoretical finance.

1. Chance, D.M., (2001), *An Introduction to Derivatives and Risk Management*, Harcourt College Publishers, Fort Worth, 5th edition.

An excellent introduction to derivative security pricing and the development of hedging procedures to minimize risk. Both institutional and theoretical discussions of derivatives are given.

2. Cochrane, J.H. (2001), *Asset Pricing*, Princeton University Press.
Focuses on the stochastic discount model and Generalized Method of Moments as the main tools to analyze financial problems.

3. Hull, J.C. (2000), *Options, Futures, and Other Derivatives*, Prentice-Hall International, NJ, 4th edition.

This is an excellent finance text which concentrates on derivative securities. It also covers some of the econometric issues covered in the course.

4. Ingersoll, J.E., Jr. (1987), *Theory of Financial Decision Making*, Rowman & Littlefield Studies in Financial Economics, USA.

A classic!

5. Neftci, S.N. (2000), *An Introduction to the Mathematics of Financial Derivatives*, Academic Press, UK.

A very clear treatment of the mathematics underlying the pricing of derivative securities.

Supplementary Financial Econometric References

The following books provide additional background econometric material for the course.

1. Pindyck, R.S. and Rubinfeld, D.L. (1998), *Econometric Models and Economic Forecasts*, 4th edition, McGraw-Hill, New York.

This is an intermediate level text which is commonly used in introductory PhD econometric courses. It covers most of the basic topics in econometrics.

2. Kawakatsu, H. (1998), *A Computer Handbook Using Eviews*, McGraw-Hill, New York.

This is a companion text for the Pindyck and Rubinfeld textbook which provides Eviews worked examples. The data files are available from the Eviews website.

<http://www.eviews.com>

1. Patterson, K. (2000), *An Introduction to Applied Econometrics: A Time Series Approach*, Macmillan Press Ltd, London.

This is a new text which provides an excellent introduction to time series models with a strong emphasis on application. This book provides the necessary extensions of nonstationary time series models not covered by Pindyck and Rubinfeld.

2. Greene, W.H. (1999), *Econometric Analysis*, 4th edition, Macmillan, New York.

This is an intermediate level text which is commonly used in introductory PhD econometric courses. It represents an extension of many of the topics covered in Pindyck and Rubinfeld. It covers both times series and cross-sectional methods with special attention given to the latter class of models.

3. Hamilton, J.D. (1994), *Time Series Analysis*, Princeton University Press, Princeton, New Jersey.

This is an advanced econometric text which is commonly used in higher level PhD econometric courses. The book specialises in time series models with an emphasis on theory, although a number of applied examples are presented to motivate the models and to show how the theory is implemented.

Materials and Equipment

A calculator may be useful for the test.

Students who live outside Wellington, or otherwise find use of the university computer labs inconvenient may wish to purchase a student version of EViews (available online).

Assessment Requirements

1. Theoretical assignment worth 30% of marks.
This assignment is based on the first block of material held in September. No computing is required but you will need to be able to interpret Eviews output. The assignment will be handed out at the end of the first block and the answers will be due on October 4th 2010.
2. Theoretical assignment worth 30% of marks.
This assignment is based on the second block of material held in October. No computing is required but you will need to be able to interpret Eviews output. The second assignment will be handed out just before the start of the second block and the answers will be due on **Sunday** November 14th 2010.

3. Empirical open-book computer test worth 40%
This assignment is based on an unseen applied problem which requires Eviews. The computer assignment is based on all material covered in the course, Blocks 1 and 2, and will be held on 31st October 2010.

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.

Penalties

Each of the assignments will be marked out of a maximum that diminishes by 5% for every day late. Please note that the weekend no longer counts as one day (ie if an assignment is due by 4pm Friday and you hand it in 3pm Sunday, you will be penalised for 2 days). Please carefully read the assignment guidelines for details of how assignments should be submitted. There will be a final cut off date, one week after the due date for each assignment, after which no assignment can be accepted.

Mandatory Course Requirements

To pass, a student must: (i) attend all sessions of both block release courses; (ii) obtain an average mark of at least 50% over total course assessment; (iii) obtain at least 50% in the test.

Class Representative

A class representative will be elected at the start of the trimester, and that person's name and contact details will be 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 including assignment questions, details of the block course schedule, feedback on course assessments, etc will be provided online via Blackboard. Students are responsible for logging onto Blackboard regularly to check for any updates or announcements, and for ensuring that the VIAF Senior Administrator, has their up to date email and postal addresses. Viaf-programme@vuw.ac.nz

If you have, or become aware of, any health condition that could prevent you attending a VIAF compulsory block release, then you should notify the Programme Director immediately, preferably by email, dawn.lorimer@vuw.ac.nz .

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.

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/