

School of Economics and Finance
MMAF 527 Special Topic: Options

Trimester 1 2007

COURSE OUTLINE

Lecturer: Toby Daglish, RH309, phone 463-5451, email: toby.daglish@vuw.ac.nz

Lecture times: Fri: 9:30-11:20, RWW128

Course Objectives

This course develops the tools required to hedge and price derivative securities trading on a variety of underlying securities. The course aims to provide students with an understanding of the theory required to price a range of securities, as well as the numerical tools to handle real world problems. By the conclusion, students should have not only a solid toolset of derivative pricing techniques, but should also be able to easily grasp other techniques they might encounter in the workforce. Individuals who are skilled at analysing derivatives are in great demand in the financial community, and can command commensurately high salaries.

Readings

Readings will be taken from a variety of sources. Probably the most used reference on this material is :

- J. Hull, "Options, Futures and Other Derivatives", Prentice Hall, 6th edition. [H]

However, for some of the topics, we will find the following books useful:

- M. Baxter and A. Rennie, "Financial Calculus: An introduction to derivative pricing", Cambridge, First edition. [BR]
- P. Wilmott, S. Howison and J. Dewynne, "The Mathematics of Financial Derivatives: A Student Introduction", Cambridge, First edition. [WHD]
- P. Schonbucher, "Credit derivatives pricing models: Models, Pricing and Implementation", Wiley, First edition. [S]

Assessment Requirements

Your course mark will be a weighted average, made up as follows: Your course mark will be a weighted average, made up as follows:

Assignment 1:	5%	due March 16.
Assignment 2:	5%	due March 30.
Midterm exam:	30%	on April 27 (during regular class time).
Live case:	25%	due May 18.
Assignment 3:	5%	due June 1.
Final exam:	30%	two hours, date will be scheduled during the university examination period (4 June – 1 July 2007).

The assignments will contain problems similar to those which will be found in the exam, while the live case will allow you to use some of the tools from the course to tackle a realistic options pricing problem using actual market data.

Penalties

Assignments and cases are due at the start of the lecture indicated. Assignments and cases handed in late will not be marked.

Mandatory course requirements

None.

Expected Workload

The expected workload for this course is 200 hours.

Communication of additional information

Information on the course, including assignments and lecture notes, will be distributed via blackboard, which can be found at <http://blackboard.vuw.ac.nz/>.

Course content

The following is the timetable for the course, with suggested readings for each section. The readings are fairly extensive, but hopefully should give you plenty of alternative explanations of the material covered in lectures.

Date	Lecture	Readings
March 2	Introduction to derivatives.	H, chapters 1-2,5,8,10. WHD, chapter 1.
March 9	Stochastic Calculus.	H, chapter 12. WHD, chapter 2. BR sections 3.1-3.3.
March 16	Risk-Neutral Valuation: PDE Approach. <i>Assignment 1 due.</i>	H, chapter 13. WHD, chapters 3-5.
March 23	Risk-Neutral Valuation: Martingale Approach.	BR, chapters 1-3.
March 30	Dividends and Options on different securities. <i>Assignment 2 due.</i>	H, chapter 14. WHD, chapter 6. BR, chapter 4
April 27	<i>Midterm Exam</i>	
May 4	Numerical Methods: Finite Difference Methods.	H, chapter 17. WHD, chapters 8-10.
May 11	Numerical Methods: Monte Carlo Simulation.	H, chapter 17.
May 18	Fixed income derivatives. <i>Case due.</i>	H, chapters 4, 28-29. WHD, chapter 17. BR, chapter 5.
May 25	Credit derivatives.	H, chapters 20-21. S, chapter 1.
June 1	Risk management. <i>Assignment 3 due.</i>	H, chapters 15-16, 18-19.

SUPPLEMENTARY INFORMATION

Faculty of Commerce and Administration Offices

Railway West Wing (RWW) - FCA Student and Academic Services Office

The Faculty's Student and Academic Services Office is located on the ground and first floors of the Railway West Wing. The ground floor counter is the first point of contact for general enquiries and FCA forms. Student Administration Advisers are available to discuss course status and give further advice about FCA qualifications. To check for opening hours call the Student and Academic Services Office on (04) 463 5376.

Easterfield (EA) - FCA/Education/Law Kelburn Office

The Kelburn Campus Office for the Faculties of Commerce and Administration, Education and Law is situated in the Easterfield Building - it includes the ground floor reception desk (EA005) and offices 125a to 131 (Level 1). The office is available for the following:

- Duty tutors for student contact and advice.
- Information concerning administrative and academic matters.
- Forms for FCA Student and Academic Services (e.g. application for academic transcripts, requests for degree audit, COP requests).
- Examinations-related information during the examination period.

To check for opening hours call the Student and Academic Services Office on (04) 463 5376.

General University Policies and Statutes

Students should familiarise themselves with the University's policies and statutes, particularly the Assessment Statute, the Personal Courses of Study Statute, the Statute on Student Conduct and any statutes relating to the particular qualifications being studied; see the Victoria University Calendar or go to <http://www.vuw.ac.nz/policy>.

For information on the following topics, go to the Faculty's website <http://www.vuw.ac.nz/fca>

- Academic Grievances
- Academic Integrity and Plagiarism
- Student and Staff Conduct
- Meeting the Needs of Students with Impairments
- Student Support

Manaaki Pihipihinga Programme

Manaaki Pihipihinga is an academic mentoring programme for undergraduate Māori and Pacific students in the Faculties of Commerce and Administration, and Humanities and Social Sciences. Sessions are held at the Kelburn and Pipitea Campuses in the Mentoring Rooms, 14 Kelburn Parade (back courtyard), Room 109D, and Room 210, Level 2, Railway West Wing. There is also a Pacific Support Coordinator who assists Pacific students by linking them to the services and support they need while studying at Victoria. Another feature of the programme is a support network for Postgraduate students with links to Postgraduate workshops and activities around Campus.

For further information, or to register with the programme, phone (04) 463 5233 ext. 8977 or email manaaki-pihipihinga-programme@vuw.ac.nz. To contact the Pacific Support Coordinator, phone (04) 463 5842 or email pacific-support-coord@vuw.ac.nz.