



## COURSE OUTLINE

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FINM 465/MOFI 406	Mathematics of Finance	15 points
MMAF 531	Special Topic - Mathematics of Finance	20 points
School of Economics and Finance		1/3 2005

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**Staff** Dr Leigh Roberts, RH323, phone 463-5937 (coordinator/lecturer)  
email: leigh.roberts@vuw.ac.nz FAX: 463 5014

**Lectures** Wednesday 8.30 - 11.20 RLWY 501

**Tutorials** Tuesday 10.30 - 11.20 RLWY 129

Friday 11.30-12.20 RLWY 315

The coordinator prefers to be contacted by email or through the tutorials, and is in any case unavailable on Mondays and Thursdays.

### **Objectives**

To gain an appreciation of the theory of compound interest and its applications to insurance on the one hand, and the financial world on the other.

### **Course content**

The course is modelled closely on the actuarial paper CT1 (formerly paper 102) of the Institute of Actuaries, and an exemption from the corresponding professional examination is normally available for a period of 2 or 3 years following the award of a grade of B+ or better from this course.

Principal elements of the syllabus include:

1. Compound interest theory and the simpler annuity and assurance functions, incorporating a simple life table.
2. Valuation of loans, including Makeham's Formula and rule of 78. Income and capital gains tax.
3. Real yield allowing for inflation and indexation. Time weighted rate of return, linked internal rate of return.
4. Duration, matching, immunisation, convexity of a stream of payments.
5. Term structure of interest rates. Spot and forward interest rates. Deterministic and stochastic interest rate models.

## Readings

Notes will be made available in Blackboard, usually as *pdf* files.

## Assessment

### Either

70%	Three hour registry exam in June
15%	Two hour test
15%	Assignments

### or

50%	Three hour registry exam in June
25%	Two hour test
25%	Assignments

whichever is to the student's advantage, save that those students obtaining a grade of B+ or better for the course need to obtain at least a B+ under the assessment scheme with the higher final exam component.

It is intended to hold the test a little after halfway through the course. Subject to sufficient speed in progressing through the course material the test will be held in class time, on a date to be fixed in consultation with the class.

Assignments will be set each week at the lecture, normally to be handed in at the lecture two weeks afterward, and to be returned marked in the lecture following.

Assignments will contain additional questions for the MMAF 531 students, who will have the assignment component of their grade assessed as the average of all the assignments. For the remaining students, the lowest two assignment marks will be disregarded when computing the average.

## Penalties

Assignments handed in late will attract a 10% penalty per day for the first five days, and be awarded zero after five days. Extensions may be negotiated prior to the deadline with the lecturer concerned.

## Mandatory course requirements

Attendance at the 2 hour test and the 3 hour examination is compulsory for a pass.

## Communication of additional information

Course notices will generally be relayed in class, via email, and put in Blackboard. All information will otherwise be held by the School Administration Assistant, Sue Freear, in RH327.

email: [suzanne.freear@vuw.ac.nz](mailto:suzanne.freear@vuw.ac.nz)

telephone: 463 5380

## General University policies and statutes

Students should familiarise themselves with the University's policies and statutes, particularly those regarding assessment and course of study requirements, and formal academic grievance procedures.

### Student Conduct and Staff Conduct

The Statute on Student Conduct together with the Policy on Staff Conduct ensure that members of the University community are able to work, learn, study and participate in the academic and social aspects of the University's life in an atmosphere of safety and respect. The Statute on Student Conduct contains information on what conduct is prohibited and what steps can be taken if there is a complaint. For queries about complaint procedures under the Statute on Student Conduct, contact the Facilitator and Disputes Advisor. This Statute is available in the Faculty Student Administration Office or on the website at:

<http://www.vuw.ac.nz/policy/StudentConduct>.

The policy on Staff Conduct can be found on the VUW website at:

<http://www.vuw.ac.nz/policy/StaffConduct>.

### Academic Grievances

If you have any academic problems with your course you should talk to the tutor or lecturer concerned or, if you are not satisfied with the result of that meeting, see the Head of School or the Associate Dean (Students) of your Faculty. Class representatives are available to assist you with this process. If, after trying the above channels, you are still unsatisfied, formal grievance procedures can be invoked. These are set out in the Academic Grievances Policy which is published on the VUW website:

<http://www.vuw.ac.nz/policy/AcademicGrievances>.

### Academic integrity and plagiarism

Academic integrity is about honesty - put simply it means **no cheating**. All members of the University community are responsible for upholding academic integrity, which means staff and students are expected to behave honestly, fairly and with respect for others at all times.

Plagiarism is a form of cheating which undermines academic integrity. Plagiarism is **prohibited** at Victoria.

The University defines plagiarism as follows: Plagiarism is presenting someone else's work as if it were your own, whether you mean to or not.

*'Someone else's work' means anything that is not your own idea, even if it is presented in your own style. It includes material from books, journals or any other printed source, the work of other students or staff, information from the Internet, software programmes and other electronic material, designs and ideas. It also includes the organization or structuring of any such material.*

#### ***Plagiarism is not worth the risk.***

Any enrolled student found guilty of plagiarism will be subject to disciplinary procedures under the Statute on Student Conduct ([www.vuw.ac.nz/policy/studentconduct](http://www.vuw.ac.nz/policy/studentconduct)) and may be penalized severely. Consequences of being found guilty of plagiarism can include:

- an oral or written warning
- suspension from class or university
- cancellation of your mark for an assessment or a fail grade for the course

Find out more about plagiarism and how to avoid it, on the University's website at: [www.vuw.ac.nz/home/studying/plagiarism.html](http://www.vuw.ac.nz/home/studying/plagiarism.html).

### **Students with Disabilities**

The University has a policy of reasonable accommodation of the needs of students with disabilities. The policy aims to give students with disabilities an equal opportunity with all other students to demonstrate their abilities. If you have a disability, impairment or chronic medical condition (temporary, permanent or recurring) that may impact on your ability to participate, learn and/or achieve in lectures and tutorials or in meeting the course requirements, then please contact the Course Coordinator as early in the course as possible. Alternatively you may wish to approach a Student Adviser from Disability Support Services to confidentially discuss your individual needs and the options and support that are available. Disability Support Services are located on Level 1, Robert Stout Building, or phoning 463-6070, email: [disability@vuw.ac.nz](mailto:disability@vuw.ac.nz). The name of your School's Disability Liaison Person can be obtained from the Administrative Assistant or the School Prospectus.

### **Student Support**

Staff at Victoria want students' learning experiences at the University to be positive. If your academic progress is causing you concern, please contact the relevant Course Coordinator, or Associate Dean who will either help you directly or put you in contact with someone who can.

The Student Services Group is also available to provide a variety of support and services. Find out more at [http://www.vuw.ac.nz/st\\_services/](http://www.vuw.ac.nz/st_services/) or email [student-services@vuw.ac.nz](mailto:student-services@vuw.ac.nz).

VUWSA employs two Education Coordinators who deal with academic problems and provide support, advice and advocacy services, as well as organising class representatives and faculty delegates. The Education Office is located on the ground floor, Student Union Building, phone 463 6983 or 463 6984, email [education@vuwsa.org.nz](mailto:education@vuwsa.org.nz).