



## STAT401/890 STOCHASTIC FINANCE COURSE INFORMATION: SEMESTER 2, 2007

### LECTURERS

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### Aims

This unit aims to integrate a basic understanding of how financial markets work with the analytic tools for modelling their time-dependent structures. Since these structures are based on random (“stochastic”) processes, stochastic models underpin the methods. Where feasible, analytical methods are developed. The aim is to present as much financial theory about securities markets as possible without requiring the advanced mathematics that is associated with continuous time models.

*Target Audience:* Students with a major in Actuarial Studies, Statistics, or Finance.

*Prerequisite:* Basic probability theory (Stat272 or equivalent)

Text: Mathematics for Finance: An Introduction to Financial Engineering by M. Capinski and T. Zastawniak., Springer; 1st ed. 2003. Corr. 4th printing edition (July 6, 2003).

Webpage <http://www-users.york.ac.uk/~tz506/m4f/>

Lecture notes, assignments and associated material will be available via WebCT.

Login at <http://online.mq.edu.au>.

Time and Place: Thursday 6-9pm in C5C 240

NOTE: Some examples, exercises and Excel files are available from <http://www-users.york.ac.uk/~tz506/m4f/>

## WEBCT

We'll be using WebCT for discussions and information dissemination. We'll regularly post updates/corrections of lecture notes and assignments, etc..

## DISTANCE MODE

Distance students will receive lecture notes and assignments by mail. Please contact Leslie Mooney, the postgraduate administrator, if you feel the notes have gone astray. Her phone number is +61 2 9850 8550 and email address is [lmooney@efs.mq.edu.au](mailto:lmooney@efs.mq.edu.au).

Please send your assignment solutions to  
A\Professor Andrzej Kozek  
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## COURSE WEBSITE

There is a course website at  
[http://www.stat.mq.edu.au/ug/units/stat\\_units400/stat401](http://www.stat.mq.edu.au/ug/units/stat_units400/stat401)  
The login button will take you to the WebCT login screen.

## PROGRAM

1 (2 Aug)	Introduction: A Simple Market Model
2 (9 Aug)	Risk Free Assets
3 (16 Aug)	Risky Assets
4 (23 Aug)	Discrete Time Market Model
5 (30 Aug)	Portfolio Management
6 (6 Sept)	Kelly Criterion and a Rule of Thumb
7 (13 Sept)	Portfolio Management Cont.
8 (4 Oct)	Forward and Future Contracts
9 (11 Oct)	Options: General Properties
10 (18 Oct)	Options Pricing
11 (25 Oct)	Financial Engineering
12 (1 Nov)	Variable Interest Rates
13 (8 Nov)	Credit risk modelling applications (Dr John Jarratt, head of Group Portfolio Unit, Westpac Banking Corporation)

<http://www.stat.mq.edu.au/staff/akozek/akozek.htm>

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## **ASSESSMENT**

Assessment consists of:

Final exam 55%

3 random, not-announced, quick class tests 15% (5% each), (the external students have to return it by WebCT on the same day)

2 Assignments 30% (15% each)

Satisfactory performance is required in all aspects of the unit. Students who have not performed satisfactorily in the assignments will not be permitted to sit the examination.

A calculator and four (4) A4 sheets of summary notes written on one or both sides in the student's own handwriting may be taken into the final examination.

**PLAGIARISM.** You can find the University policy on plagiarism at <http://www.student.mq.edu.au/plagiarism/>

## **SOFTWARE**

Matlab is our preferable software for solving assignments and classroom problems. We will provide Matlab code used in solving examples discussed in the class. We also recommend using Scientific Notebook in reporting assignments and solving analytical problems.