



# THE UNIVERSITY OF NEW SOUTH WALES

## SCHOOL OF BANKING & FINANCE

### DERIVATIVES & RISK MANAGEMENT TECHNIQUES

#### FINS5535

#### Course Outline – Session 1, 2006

#### ***Objective***

This course provides both introductory theory and a working knowledge of futures, options, and swaps, with an emphasis on the use of derivatives in risk management. The theory component is important, as with the rapid expansion of different derivative types we must know the fundamental pricing principle. The working knowledge component will cover the main types of derivatives contracts and valuation techniques. This subject is both theoretical and practical; the emphasis will be on problem solving.

#### ***Relationship to other courses***

This course is introductory in nature. It does, however, assume a working knowledge of finance concepts, including time value of money, and of higher mathematics, including probability distribution and stochastic calculus. There is some overlap with material discussed in FINS 5513, Security Valuation, though the course will explore these topics in much greater depth. Students interested in FINS5536, Interest Rate Derivatives or FINS5517, Applied Portfolio Management, will benefit from concepts explained in FINS5535.

#### ***Lecturers***

##### **Dr. Raymond Liu**

Office: Quad 3050 Phone: 9385-5852

E-mail: [wmr.liu@unsw.edu.au](mailto:wmr.liu@unsw.edu.au)

Consultation Hours: Monday 9am-10am and Wednesday 9am-10am

##### **Dr Li Yang**

Office: QUAD 3059 Phone: 9385-5857

E-mail: [l.yang@unsw.edu.au](mailto:l.yang@unsw.edu.au)

Consultation Hours: Monday 16:00 - 18:00

##### **Dr Pascal Nguyen**

Lecturer-in-Charge

Office: QUAD 3071 Phone: 9385-5773

E-mail: [pascal@unsw.edu.au](mailto:pascal@unsw.edu.au)

Consultation Hours: Wednesday 16:00 – 18:00

## **Lectures**

Tuesday 18:00-21:00 CLB 3  
Wednesday 13:00-16:00 MACAULEY THT

## **Textbook**

The prescribed textbook for this course is  
Options, Futures and Other Derivative Securities, by John C. Hull, 6<sup>th</sup> Ed., Prentice-Hall

## **Reference Book**

Fundamentals of Futures and Options Markets, by John C. Hull, 5<sup>th</sup> Ed., Prentice-Hall, 2003.

## **WebCT**

The lecture notes and important announcements will be available at the WebCT course site, which can be accessed from the WebCT log-in page at

<http://webct.edtec.unsw.edu.au/>

## **Assessment**

The design of this course presupposes that participating students are interested in the topics and will endeavour to learn the material presented. Lectures, in-class problem solving, recommended practice problems and the solution manual, and consultation with lecturers are all provided to facilitate learning, however, ultimately the time and effort each student devotes to the course will determine how much he or she learns from it. Assessments for this course are limited to examinations designed to certify a level of understanding. **The exams are not learning tools and will not be returned to or discussed with students.**

There are three parts in the assessment process:

Quiz week 5	15%
Mid-Session Examination	40%
Final Examination	45%

The quiz will be one hour and a half (1h30) in duration, administered at the beginning of class in week five (lecture follows). The mid-session test will be in week 10 in the normal lecture rooms and will last for 2 hours. The final examination will be held during the formal examination period and will last for three hours. Tests and exams are cumulative, with a focus on the more recent material covered in class.

If applicable, students should notify their employers of the requirement to attend tests. Failure to show up at the tests does not automatically lead to reassessment. If a student is granted special consideration for the quiz or the mid-session test, the course mark will be based on the completed assessment items prorated accordingly. For example, a student misses the quiz because s/he is in hospital, the student's mark will be assessed as 44% from the mid-session, 56% from the final. If a student misses the mid-session test because s/he is in hospital, the quiz will contribute 17% to the final mark, the final exam will account for 83%.

## ***Test and Examination Format***

The quiz, mid-session test and the final examination will focus on problem solving skills acquired throughout the session from the class lectures and from exercises done by the students themselves from the relevant chapters of the textbook. The instructors are not in a position to hand out past test/examination papers, though the quiz and mid-session test are representative of the final exam. The tests will feature multiple choice questions and short “free-format” problems.

## ***Special Consideration***

Rules of special considerations are published on UNSW website student gateway and the School of Banking & Finance website. Attention is drawn to the following extract from the University of New South Wales Calendar “Procedures”:

“Students who believe that their performance in a subject, either during the session or in an examination, has been adversely affected by sickness or any other reason should inform the Registrar and apply for special consideration in the determination of their standing. The application must be made on the ‘Application for Special Consideration’ form available from the Student Centre. Such requests should be lodged as soon as is practical and in any event ***no more than three days after the exam*** for which special consideration is sought.”

A photocopy of all material supporting an application for special consideration, as lodged with the Registrar, must also be provided to the Lecturer-in-charge within seven days of any event for which special consideration is sought. For special consideration on medical ground, students must inform their doctors to post a copy of the results of any laboratory tests conducted to the lecturer-in-charge directly within seven days of their availability. Students must also inform their doctors that the lecturer-in-charge and/or the Examination Assessment Committee may approach them to discuss and learn about the medical condition in details.

## ***Supplementary Examination***

Students who apply for special consideration are advised that

- an Assessment Committee decides on the granting of supplementary assessment,
- lodging of applications for special consideration does not guarantee that supplementary assessment will be granted and/or that a pass in the subject will be given,
- it is your responsibility to be available for supplementary assessment during the specified period (holiday plans are not sufficient reason for non-availability),
- it is your responsibility to inform the University Student Centre of any changes to your addresses and telephone numbers,
- if the supplementary assessment is granted, it is your responsibility to check the details of the supplementary examination such as time and venue,
- an oral component of up to 20% of the marks allocated to the related examination may be included in the supplementary assessment.

## ***Academic Misconduct and plagiarism***

Students are reminded that the University regards academic misconduct and plagiarism as a very serious matter. More information about misconduct and plagiarism can be found at the Faculty web site of

[http://www.fce.unsw.edu.au/current\\_students/responsibilities.shtml - misconduct](http://www.fce.unsw.edu.au/current_students/responsibilities.shtml - misconduct).

The following information is taken from p.23 of the Policy. Plagiarism entails taking and using as one's own, the thoughts or writings of another without acknowledgement including: (a) where paragraphs, sentences, a single sentence or significant part of a sentence which are copied directly, are not enclosed in quotation marks and appropriately footnoted; (b) where direct quotations are not used, but ideas or arguments are paraphrased or summarised, and the source of the material is not acknowledged either by footnoting or other reference within the text of the paper; and (c) where an idea, which appears elsewhere in print, film or electronic medium, is used or developed without reference being made to the author or the source of the idea.

## **Lecture Outline**

With Dr Raymond Liu

Ref: Hull, 6<sup>th</sup> Edition

<b>Week 1</b>	Overview of Derivative Markets	Hull: Ch. 1, 2 & 5
<b>Week 2</b>	Hedging with Futures	Hull: Ch. 3
<b>Week 3</b>	Interest Rate Futures	Hull: Ch. 4 & 6
<b>Week 4</b>	Swaps	Hull: Ch. 7
<b>Week 5</b>	Revision & <b>Short Quiz (15%)</b>	

With Dr Li Yang

<b>Week 6</b>	Fundamentals of Options	Hull: Ch. 8, 9, 10
<b>Week 7</b>	Binomial Option Pricing Model	Hull: Ch. 11
<b>Week 8</b>	Stochastic Processes & Ito's Lemma	Hull: Ch. 12
<b>Week 9</b>	Black-Scholes Option Pricing Model	Hull: Ch. 13

**Week 10 Mid-term exam (40%)**

With Dr Pascal Nguyen

<b>Week 11</b>	Options on indices, currencies and futures	Hull: Ch.14
<b>Week 12</b>	The Greek Letters	Hull: Ch.15 & 17
<b>Week 13</b>	Volatility and Value at Risk	Hull: Ch.16, 18
<b>Week 14</b>	Exotic options & Revisions	Hull: Ch.22

**\*\*\*\*\* Final-term exam (45%)**