

THE UNIVERSITY OF
NEW SOUTH WALES



Faculty of Commerce and Economics
School of Banking and Finance

FINS3635
OPTIONS, FUTURES AND RISK MANAGEMENT
TECHNIQUES

COURSE OUTLINE
SESSION 1, 2008

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1. COURSE STAFF

Course Coordinator/Lecturer: Dr. Li Yang

Location: ABS 362

Contact no.: (02) 93855857

Email: l.yang@unsw.edu.au

Consultation: 2pm – 4pm Tuesday

Tutor in Charge: Damien Lee

Location: ABS Level 3

Email address: damien.lee@student.unsw.edu.au

Consultation: TBA

Tutor: Ger Rui Lim

Location: ABS Level 3

Email address: gerrui84@hotmail.com

Consultation: TBA

1.1 Communication with Staff

Students with questions regarding course administration or contents are encouraged to:

- contact the instructors and tutors during consultation hours
- email the instructors and tutors
- check the course Web site

2. INFORMATION ABOUT THE COURSE

2.1 Teaching times and Locations

Classes	Date and time	Location
Lecture A	Tuesday 16-18	ElecEngG25
Lecture B	Thursday 15-17	ElecEngG25
Tutorial 1a	Tuesday 12-13	QUAD GO45
Tutorial 1b	Tuesday 12-13	QUAD GO42
Tutorial 2a	Tuesday 14-15	QUAD GO44
Tutorial 2b	Tuesday 14-15	RedC 3037
Tutorial 3a	Tuesday 15-16	Quad GO44
Tutorial 3b	Tuesday 15-16	RedC 3037
Tutorial 4a	Thursday 12-13	QUAD GO31
Tutorial 4b	Thursday 12-13	RedC 2035
Tutorial 5a	Thursday 14-15	QUAD GO52
Tutorial 5b	Thursday 14-15	QUAD GO27
Tutorial 6	Thursday 17-18	ASBus 114

2.2 Units of Credit

This course has 6 units of credit and 3 contact hours per week.

2.3 Prerequisites

The prerequisite for this course is FINS 2624 Portfolio Management. It is the responsibility of students to ensure that the prerequisite has been met before commencing this course.

3. COURSE AIMS AND OUTCOMES

3.1 Course Aims

This course is to provide a rigorous introduction to fundamental pricing principles and hedging techniques in derivative markets. It focuses on the main types of exchange-traded options and futures contracts. It is designed to acquaint students with the tools that are necessary to analyse common issues in derivative markets. In particular, appreciable time will be spent on investigating various arbitrage opportunities and developing risk management strategies using derivative instruments.

3.2 Student Learning Outcomes

Upon completion, students are expected to be able to understand the mechanics of buying, selling, exercising, and settling of derivative instruments, determine the value of these instruments, and use them to manage financial risk.

3.3 Teaching Strategies

This course consists of weekly two-hour lectures and one-hour tutorials. The lectures will deliver the material primarily covered by the textbook. Students are expected to read the relevant chapters in the textbook before attending each lecture. Tutorials are designed to help students understand the issues and concepts discussed in the lectures. Therefore, it is highly recommended that students try to do homework problems before attending tutorials. The homework problems are chosen from the end-of-chapter questions and more information can be found on page 9.

4. STUDENT RESPONSIBILITIES AND CONDUCT

4.1 Workload

It is expected that students will spend at least **ten hours** per week studying this course. This time should be made up of reading, research, working on exercises and problems, and attending classes. In periods where students need to complete assignments or prepare for examinations, the workload may be greater.

4.2 Attendance

Your regular and punctual attendance at lectures and tutorials is expected in this course. University regulations indicate that if students attend less than eighty per cent of scheduled classes they may be refused final assessment.

4.3 General Conduct and Behaviour

You are expected to conduct yourself with consideration and respect for the needs of your fellow students and teaching staff. Conduct which unduly disrupts or interferes with a class, such as ringing or talking on mobile phones, is not acceptable and students may be asked to leave the class. More information on student conduct is available at: www.my.unsw.edu.au

4.4 Keeping informed

Students should take note of all announcements made in lectures, tutorials or on the course web site. From time to time, the University will send important announcements to students' university e-mail addresses without providing students with a paper copy. Students will be deemed to have received this information.

5. LEARNING ASSESSMENT

5.1 Formal Requirements

To pass this course, you must:

- achieve a composite mark of at least 50; and
- make a satisfactory attempt at all assessment tasks (see below).

5.2 Assessment Details

Assessment is based on two examinations. The assessment scheme is as follows:

Mid-Session Examination	50%
Final Examination	50%
Total	100%

The mid-session examination will be held on **April 22 (Tuesday), 2008 between 18:00 -21:00** in Week 6. If you have a conflict with the date and time, you must let me know as soon as possible. The exam covers materials in both the textbook and the lecture notes during the first five weeks of lectures. It will be comprised of multiple choice and calculation questions. The examination is close book. The venue is to be announced in the class as well as the WebCT VISTA course site.

The final examination will cover materials in both the textbook and the lecture notes during the last six weeks of lectures. It will be comprised of multiple choice and calculation questions. It will be held during the UNSW Exam Weeks. The examination is also close book.

All examinations are conducted in accordance with the UNSW Rules for the Conduct of Examinations and it is the student's responsibility to be familiar with these rules. For more information, refer to the UNSW examination website at:

http://www.studentadmin.unsw.edu.au/academiclife/assessment/examinations/examination_rules.shtml

A number of homework questions/problems have been assigned for each week. These questions/problems should **not** be turned in and therefore no marks are awarded. Solutions for "Questions and Problems" from Hull can be found in the Student Solution Manual, which can be purchased from the UNSW bookshop and solutions for "Assignment Questions" can be found in the Instructor's Manual, which is available in the library at open reserve section. It is highly recommended that you try to do each question/problem before looking at the solutions. Some of the questions to be discussed in tutorials will be chosen from the homework question/problem set (see page 9).

5.3 Special Consideration and Supplementary examinations

Students should be aware of special consideration rules and supplementary examinations.

UNSW Policy and Process for Special Consideration can be found:

<https://my.unsw.edu.au/student/atoz/SpecialConsideration.html>.

Specifically:

- Applications for special consideration (including supplementary examinations) must go through UNSW Central administration (within 3 working days of the assessment to which it refers) – applications will **not** be accepted by teaching staff;

- Applying for special consideration does not automatically mean that you will be granted additional assessment or that you will be awarded an amended result;
- If you are making an application for special consideration (through UNSW Central Administration) please notify your Lecturer in Charge;
- Please note: a register of applications for Special Consideration is maintained. History of previous applications for Special Consideration is taken into account when considering each case.

ASB Policy and Process for Special Consideration and Supplementary Exams in Undergraduate Courses

In the ASB, requests for special consideration are determined by a Faculty wide panel which will advise the Lecturer in Charge of appropriate action.

If the Faculty panel (see above) grants a special consideration request, this may entitle the student to sit a supplementary examination. In such cases the following procedures will apply:

- Supplementary exams will be scheduled centrally and will be held approximately two weeks after the formal examination period. Actual date will be advised by mid-semester.
- Where a student is granted a supplementary examination as a result of a request for special consideration, the student's original exam (if completed) will not be marked and only the mark achieved in the supplementary examination will count towards the final grade.

Further information concerning supplementary examinations is available on the 'Policies and Guidelines for Current Students' page of the ASB website:

www.business.unsw.edu.au/currentstudents.

6. ACADEMIC HONESTY AND PLAGIARISM

The University regards plagiarism as a form of academic misconduct, and has very strict rules regarding plagiarism. For full information regarding policies, penalties and information to help you avoid plagiarism see:

<http://www.lc.unsw.edu.au/plagiarism/index.html>

7. STUDENT RESOURCES

7.1 Course Resources

Textbook

The prescribed textbook for this course is:

Options, Futures and Other Derivative Securities, by John C. Hull, 6th Ed., Prentice-Hall, 2006. This textbook is widely used in courses and on the "street". It includes almost everything you ever wanted to know about derivatives. It can be hard reading, but it is well worth the effort. Copies are available at the UNSW bookshop.

Reference Books

Fundamentals of Futures and Options Markets, by John C. Hull, 4th Ed., Prentice-Hall, 2002.

Futures, Options and Swaps, by R. W. Kolb, 4th Ed, Blackwell Publishing, 2003

Business Finance, by G. Peireson, R. Brown, S. Easton, P. Howard, and S. Pinder, 9th Ed., McGraw-Hill, 2006 (Ch. 18-19)

Lecture Notes

The lecture notes and important announcements will be available at the UNSW WebCT VISTA, which can be accessed at <http://vista.elearning.unsw.edu.au/>

Other Readings

Cox, J., S. Ross, and M. Rubinstein. "Options Pricing: A simplified Approach," *Journal of Financial Economics*, 7 (1979), 229-64.

Black, F., and M. Scholes. "The Pricing of Options and Corporate Liability," *Journal of Political Economy*, 81(1973), 637-59.

Merton, R. C. "Theory of Rational Option Pricing," *Bell Journal of Economics and Management Science*, 4(1973), 141-183.

A Random Walk Down Wall Street, by Burton Gordon Malkiel, 7th Ed., W. W. Norton & Company, 1999. *A classic book that has educated many investors.*

7.2 Other Resources, Support and Information

The University and Faculty provide a wide range of support services for students:

- **Learning and study support**
 - FCE Education Development Unit (<http://education.fce.unsw.edu.au>)
 - UNSW Learning Centre (<http://www.lc.unsw.edu.au>)
 - EdTec – WebCT information (<http://www.edtec.unsw.edu.au>)
- **Counselling support** - <http://www.counselling.unsw.edu.au>
- **Library training and support services** - <http://info.library.unsw.edu.au>
- **Disability Support Services** – <http://www.equity.unsw.edu.au/disabil.html>.

In addition, it is important that all students are familiar with University policies and procedures in relation to such issues as:

- **Examination procedures** and advice concerning illness or misadventure
<https://my.unsw.edu.au/student/academiclife/assessment/examinations/examinationrules.html>
- **Occupational Health and Safety** policies and student responsibilities;
<http://www.riskman.unsw.edu.au/ohs/Policies%20&%20Procedures/UNSW%20OHS%20Accountability.pdf>

8. CONTINUAL COURSE IMPROVEMENT

Each year feedback is sought from students and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process (http://www.ltu.unsw.edu.au/ref4-5-1_catei_process.cfm) is one of the ways in which student evaluative feedback is gathered. Significant changes to courses and programs within the School are communicated to subsequent cohorts of students.

9. COURSE SCHEDULE

Week 1	Introduction to Derivative Markets • Basic Types of Derivative Securities • Introduction of Contracts and Exchanges • Significance and Role of Derivatives Fundamentals of Futures Contracts • Futures vs Forward Contracts • Market Structure and Mechanics of Trading • Marking to Market Hull: Ch. 1 and Ch. 2
Week 2	Pricing Futures/Forward • Cost-of-Carry Relation • Arbitrage Opportunity • Value vs Price Hull: Ch. 5
Week 3-4	Hedging with Futures • Hedging without Basis Risks • Hedging with Basis Risk • Estimation of Hedge Ratio Hull: Ch.3
Week 5	Swap • Interest Rate and Currency Swaps • Valuation of Swaps Hull: Ch. 7 Mid-session Exam Revision
Week 6	Mid-Session Examination (April 22, 2008 6-9pm)
Week 7	Fundamentals of Options • Mechanics of Options Markets • Option Pricing Restriction: Arbitrage Relations • Upper and Lower Bounds for Option Prices • Put-Call Parity Hull: Ch. 8 & 9
Week 8	Trading Strategies Involving Options • Strategies Involving a Single Option and a Stock • Spreads • Combinations Hull: Ch.10
Week 8-9	Binomial Option Pricing Model • Single-Period Model

- Multi-Period Model

Hull: Ch.11 & 17

- Week 10-11** Black-Scholes Option Pricing Model
- Stochastic Processes
 - Modelling Behaviour of Stock Price
 - Ito's Lemma
 - Black-Scholes Model
 - Term Structure of Volatility
 - Alternative Models for Stock Options

Hull: Ch.12, 13, & 16

- Week 11** Options on Stock Indices, Currencies, and Futures
- Specification of Contracts
 - Valuations

Hull: Ch. 14

- Week 12** Management of Market Risk
- Hedging with Options – the “Greeks”

Hull: Ch. 15

Homework:

Ch 1: 1.1-1.27, 1.28, 1.29

Ch 2: 2.1-2.22, 2.26, 2.28

Ch 3: 3.1-3.6, 3.8-3.15, 3.20-3.23

Ch 4: 4.2, 4.5, 4.7, 4.17-4.18

Ch 5: 5.1-5.15, 5.17-5.19, 5.24-5.25

Ch 6: 6.1-6.23, 6.26

Ch 7: 7.1-7.8, 7.11, 7.18-7.22

Ch. 8: 8.1, 8.3, 8.6, 8.9, 8.11, 8.13, 8.16, 8.17

Ch. 9: 9.1- 9.14, 9.21, 9.24

Ch. 10: 10.1 - 10.17, 10.21

Ch. 11: 11.1, 11.4 -11.6, 11.15

Ch. 12: 12.8

Ch. 13: 13.1, 13.4 - 13.6, 13.13, 13.18, 13.20, 13.21, 13.25, 13.27, 13.29

Ch. 14: 14.1, 14.3, 14.4, 14.7 - 14.11, 14.13, 14.15, 14.16, 14.31.

Ch. 15: 15.2 - 15.6, 15.14, 15.25