

THE UNIVERSITY OF
NEW SOUTH WALES



Australian School of Business
School of Banking and Finance

FINS 3635
OPTIONS, FUTURES AND RISK MANAGEMENT
TECHNIQUES

COURSE OUTLINE
SEMESTER 2, 2009

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1. STAFF CONTACT DETAILS

Course Coordinator/Lecturer: Dr. Li Yang
Location: ASB 362
Contact no.: (02) 93855857
Email: l.yang@unsw.edu.au
Consultation: 3pm – 5pm Wednesdays

Tutor in Charge: Uwe Helmes
Location: ASB Level 3
Email address: uwehelmes@hotmail.com
Consultation: TBA

Tutors: Dominic Wong
Location: ASB Level 3
Email address: z3185884@student.unsw.edu.au
Consultation: TBA

The preferred communication with the lectures is via email. Please use the UNSW provided student email address.

2. COURSE DETAILS

2.1 Teaching Times and Locations

| Classes | Date and time | Location |
|----------------|-----------------|-----------------|
| Lecture | Tuesday 11-13 | Science Theatre |
| Tutorial 1 | Thursday 10-11 | QUAD 1046 |
| Tutorial 2 | Thursday 12-13 | Hut D10 Rm G01 |
| Tutorial 3 | Thursday 13-14 | Hut D10 Rm G01 |
| Tutorial 4 | Thursday 16-17 | Hut D10 Rm G02 |
| Tutorial 5 | Wednesday 10-11 | Hut D10 Rm G03 |
| Tutorial 6 | Wednesday 11-12 | Hut D10 Rm G03 |
| Tutorial 7 | Wednesday 13-14 | Hut D10 Rm G03 |
| Tutorial 8 | Wednesday 14-15 | QUAD G035 |
| Tutorial 9 | Wednesday 15-16 | QUAD G044 |

You must follow the course schedule as outlined in section 10 of this document. Additional tasks may be assigned and the applicable details will be posted on WebCT.

2.2 Units of Credit

This course has six units of credit and three contact hours per week.

2.3 Summary of Course

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 analyze 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.

2.4 Course Aims and Relationship to Other Courses

The aims of the course are to:

- Provide a rigorous understanding of main types of exchange-traded options and futures contracts,

- Develop working knowledge on the use of options and futures in risk management
- Provide necessary skills to value options and futures.

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.

There is some overlap with material discussed in FINS2624, though the course will explore these topics in much greater depth. Students interested in Interest Rate Derivatives or Applied Portfolio Management will benefit from concepts explained in FINS3635.

Students also need to be able to use a word processing package (such as WORD) and a spreadsheet (such as EXCEL). Some quantitative skill such as basic mathematical ability in dealing with algebraic manipulation is expected.

2.5 Student Learning Outcomes

On successful completion of this course, students should be able to

1. Understand mechanics of buying, selling, exercising, and settling of options and futures
2. Determine value of options and futures
3. Use options and futures to manage financial risk
4. Construct various trading strategies
5. Identify arbitrage opportunities
6. Understand the interaction between derivative markets and underlying markets
7. Work efficiently with others in a team.

Graduate Attributes

This course contributes to your development of the following Australian School of Business Graduate Attributes, which are the qualities, skills and understandings we want you to have by the completion of your degree.

| Course Learning Outcomes | ASB Graduate Attributes |
|--------------------------|---|
| 1-6 | 1. Critical thinking and problem solving |
| 7 | 2. Communication |
| 7 | 3. Teamwork and leadership |
| | 4. Social, ethical and global perspectives |
| 1-6 | 5. In-depth engagement with relevant disciplinary knowledge |
| 1-7 | 6. Professional skills |

3. LEARNING AND TEACHING ACTIVITIES

3.1 Approach to Learning and Teaching in the Course

- engaging students in learning
- contextualising students' learning experiences
- taking into account research on student learning
- encouraging critical reflection on practice

3.2 Learning Activities and 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 strongly encouraged to read the topics before attending the lectures. This subject is very analytical and there are many new concepts to be understood. It will be difficult to grasp all the underlying principles without preparation. 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 are given at the end of each lecture.

4. ASSESSMENT

4.1 Formal Requirements

In order 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).

4.2 Assessment Details

There are three components of the assessment process in this course. These are aimed at individual as well as group performances. The components have been designed to make the students feel and become confident about solving problems in the derivative market.

| Assessment Task | Weighting | Learning Outcomes assessed | ASB Graduate Attributes assessed | Length | Due Date |
|-------------------------|-----------|----------------------------|----------------------------------|-----------|-------------------|
| 1. Midsession exam | 40% | 1-6 | 1, 5, 6 | 2.5 hours | Week 6 |
| 2. Final exam | 45% | 1-6 | 1, 5, 6 | 3 hours | Final exam period |
| 3. One group assignment | 15% | 4, 6, 7 | 1, 2, 3, 4, 5, 6 | N/A | Oct 13, 2009 |

4.3 Assessment Format

Both the mid-session and final examinations are closed book. The midsession examination will be held in week 6 and covers material in both the textbook and the lecture notes from weeks 1-5. The time and venue will be announced when the detailed booking information is available. The final examination will be held during the formal examination period and covers material in both the textbook and the lecture notes from weeks 7-12.

The group assignment will be described on the Web VISTA under the assignment folder. It is designed to help students become familiar with relation between options price and several fundamental variables such as spot price and time to maturity, and help student learn how to use options contracts to form various trading strategies. The assignment is almost solely based on material from the second half of the course.

4.4 Assignment Submission Procedure

You must upload your assignment on Web VISTA before 11am on 13/10/09 and hand in a printed copy during the lectures. Only one submission is required for each group.

4.5 Late Submission

Late submission of assignment in this course will not be accepted. This will help meet all the result submission deadlines.

5. ACADEMIC HONESTY AND PLAGIARISM

The University regards plagiarism as a form of academic misconduct, and has very strict rules regarding plagiarism. For UNSW policies, penalties, and information to help you avoid plagiarism see: <http://www.lc.unsw.edu.au/plagiarism/index.html> as well as the guidelines in the online ELISE tutorial for all new UNSW students:

<http://info.library.unsw.edu.au/skills/tutorials/InfoSkills/index.htm>.

6. COURSE RESOURCES

Textbook - The prescribed textbook for this course is:

Options, Futures and Other Derivative Securities, by John C. Hull, 7th Ed., Prentice-Hall, 2008. This textbook is widely used in courses and on the “street”. It includes almost everything you want to know about derivatives. It can be hard reading, but it is well worth the effort.

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

Lecture Notes

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

7. COURSE EVALUATION AND DEVELOPMENT

Each year feedback is sought from students 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 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.

8. STUDENT RESPONSIBILITIES AND CONDUCT

Students are expected to be familiar with and adhere to university policies in relation to class attendance and general conduct and behaviour, including maintaining a safe, respectful environment; and to understand their obligations in relation to workload, assessment and keeping informed.

Information and policies on these topics can be found in the ‘A-Z Student Guide’: <https://my.unsw.edu.au/student/atoz/ABC.html>. See, especially, information on ‘Attendance and Absence’, ‘Academic Misconduct’, ‘Assessment Information’, ‘Examinations’, ‘Special Consideration’, ‘Student Responsibilities’, ‘Workload’ and policies such as ‘Occupational Health and Safety’.

8.1 Workload

It may be necessary to devote about ten hours per week for this course including the class attendances. Depending on the level of skill acquired in other courses and the items described under assumed knowledge before, the time needed to grasp all the details of this course will vary between individuals.

It is the students’ responsibility to balance the time commitment to this course with other activities.

8.2 Attendance

The student should attend all lectures. The information that flows in the class as well as during interactive discussions is vital to the understanding of the concepts of this course.

8.3 Special Consideration and Supplementary Examinations

You must submit all assignments and attend all examinations scheduled for your course. You should seek assistance early if you suffer illness or misadventure which affects your course progress. For advice on UNSW policies and procedures for granting special consideration and supplementary exams, see:

'UNSW Policy and Process for Special Consideration':
<https://my.unsw.edu.au/student/atoz/SpecialConsideration.html>

The 'ASB Policy and Process for Special Consideration and Supplementary Exams in Undergraduate Courses' is available at:
<http://www.docs.fce.unsw.edu.au/fce/current/StudentSuppExamProcedure.pdf>.

Further information for undergraduate students is on the ASB website (see '[Policies and Guidelines for Current Students](#)').

8.4 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

8.5 Occupational Health and Safety

UNSW Policy requires each person to work safely and responsibly, in order to avoid personal injury and to protect the safety of others. For more information, see <https://my.unsw.edu.au/student/atoz/OccupationalHealth.html>.

8.6 Keeping Informed

You 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 your university e-mail address without providing you with a paper copy. You will be deemed to have received this information. It is also your responsibility to keep the University informed of all changes to your contact details.

9. ADDITIONAL STUDENT RESOURCES AND SUPPORT

The University and the ASB provide a wide range of support services for students, including:

- **ASB Education Development Unit (EDU)** (www.business.unsw.edu.au/edu)
Academic writing, study skills and maths support specifically for ASB students. Services include workshops, online and printed resources, and individual consultations. EDU Office: Room GO7, Ground Floor, ASB Building (opposite Student Centre); Ph: 9385 5584; Email: edu@unsw.edu.au
- **Capturing the Student Voice:** An ASB website enabling students to comment on any aspect of their learning experience in the ASB. To find out more, go to <http://tinyurl.com/ASBStudentVoice>.
- **UNSW Learning Centre** (www.lc.unsw.edu.au)

Academic skills support services, including workshops and resources, for all UNSW students. See website for details.

- **Library training and search support services:** <http://info.library.unsw.edu.au>
- **UNSW IT Service Desk:** Technical support for problems logging in to websites, downloading documents etc. Library, Level 2; Ph: 9385 1333.
Website: www.its.unsw.edu.au/support/support_home.html
- **UNSW Counselling Service** (<http://www.counselling.unsw.edu.au>)
Free, confidential service for problems of a personal or academic nature; and workshops on study issues such as 'Coping With Stress' and 'Procrastination'.
Office: Level 2, Quadrangle East Wing; Ph: 9385 5418
- **Student Equity & Disabilities Unit** (<http://www.studentequity.unsw.edu.au>) Advice regarding equity and diversity issues, and support for students who have a disability or disadvantage that interferes with their learning. Office: Ground Floor, John Goodsell Building; Ph: 9385 4734.

10. COURSE SCHEDULE

COURSE SCHEDULE

| | |
|-----------------|--|
| Week 1 | Introduction to Derivative Markets <ul style="list-style-type: none">• Basic Types of Derivative Securities• Introduction of Contracts and Exchanges Fundamentals of Futures Contracts <ul style="list-style-type: none">• Futures vs Forward Contracts• Trading Futures• Marking to Market Hull: Ch. 1 and Ch. 2 |
| Week 2 | Pricing Futures/Forward <ul style="list-style-type: none">• Cost-of-Carry Relation• Arbitrage Opportunity• Value vs Price Hull: Ch. 5 |
| Week 3-4 | Hedging with Futures <ul style="list-style-type: none">• Hedging without Basis Risks• Hedging with Basis Risk• Estimation of Hedge Ratio Hull: Ch.3 |
| Week 5 | Swap <ul style="list-style-type: none">• Currency Swaps• Valuation of Swaps Hull: Ch. 7 Discussion of Group Assignment |
| Week 6 | Midsession Exam |
| Week 7 | Fundamentals of Options <ul style="list-style-type: none">• Mechanics of Options Markets• Option Pricing Restriction: Arbitrage Relations• Upper and Lower Bounds for Option Prices• Put-Call Parity |

Hull: Ch. 8 & Ch. 9

- Week 8** Trading Strategies Involving Options
- Strategies Involving a Single Option and a Stock
 - Spreads
 - Combinations

Hull: Ch.10

- Week 9** Binomial Option Pricing Model
- Single-Period Model
 - Multi-Period Model

Hull: Ch.11

- Week 10-11** Black-Scholes Option Pricing Model
- Modelling Behaviour of Stock Price
 - Black-Scholes Model
 - Alternative Models for Stock Options

Hull: Ch.12 & Ch.13,

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

Hull: Ch. 15 & Ch. 16

- Week 12** Management of Market Risk
- Hedging with Options – the “Greeks”
- Hull: Ch. 17

Group assignment due 11am on 10/13/09