Faculty of Commerce and Economics
School of Banking and Finance

FINS3635
OPTIONS, FUTURES AND RISK MANAGEMENT TECHNIQUES

COURSE OUTLINE
SESSION 2, 2007
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1. COURSE STAFF

Course Coordinator/Lecturer: Dr. Wai-Man Raymond Liu
Location: QUAD 3050 (HEFFRON 306 after 11 Aug)
Contact no.: (02) 93855852
Email: wmr.liu@unsw.edu.au
Consultation: 4pm – 6pm Wednesday

Tutor: Shah Shahidil
Location: QUAD 3054
Email address: s.shahidil@gmail.com
Consultation: 10am – 12noon Thursday

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

There are one lecture and seven tutorials:

<table>
<thead>
<tr>
<th>Classes</th>
<th>Date and time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>Wednesday 11-13</td>
<td>CHEM SC L1</td>
</tr>
<tr>
<td>Tutorial 1</td>
<td>Wednesday 10-11</td>
<td>QUAD GO34</td>
</tr>
<tr>
<td>Tutorial 2</td>
<td>Wednesday 13-14</td>
<td>QUAD GO32</td>
</tr>
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<td>Tutorial 3</td>
<td>Wednesday 15-16</td>
<td>OMB 228</td>
</tr>
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<td>Tutorial 4</td>
<td>Wednesday 16-17</td>
<td>QUAD GO34</td>
</tr>
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<td>Thursday 12-13</td>
<td>QUAD GO27</td>
</tr>
<tr>
<td>Tutorial 6</td>
<td>Thursday 14-15</td>
<td>QUAD 1045</td>
</tr>
<tr>
<td>Tutorial 7</td>
<td>Thursday 15-16</td>
<td>QUAD GO46</td>
</tr>
</tbody>
</table>

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 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

This course consists of weekly two-hour lectures and one-hour tutorials. The lectures will deliver the materials 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 10.

3.3 Teaching Strategies

This course consists of weekly two-hour lectures and one-hour tutorials. The lectures will deliver the materials 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 10.

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 website. 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:

<table>
<thead>
<tr>
<th>Assessment Type</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Mid-Session Examination</td>
<td>50%</td>
</tr>
<tr>
<td>Final Examination</td>
<td>50%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
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The mid-session examination will be held on **September 5, 2007 between 11:00 -14:00** in Week 7. 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 six 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 seven 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:


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 questions to be discussed in tutorials will be chosen from the homework question/problem set (see page 10).

5.3 Special Consideration and Supplementary examinations

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

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 the derivatives. It can be hard reading, but it is well worth the effort. Copies are available at the UNSW bookshop.

Reference Books


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


### 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


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

- **Occupational Health and Safety** policies and student responsibilities;

### 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

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<th>Week</th>
<th>Topic</th>
<th>Details</th>
<th>Hull: Pages</th>
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| Week 1| Introduction to Derivative Markets                                  | • Basic Types of Derivative Securities  
• Introduction of Contracts and Exchanges  
• Significance and Role of Derivatives | Ch. 1 & 22 |
| Week 2| Fundamentals of Futures Contracts                                   | • Futures vs Forward Contracts  
• Market Structure and Mechanics of Trading  
• Marking to Market | Ch. 2 |
| Week 3| Pricing Futures/Forward                                              | • Cost-of-Carry Relation  
• Arbitrage Opportunity  
• Value vs Price | Ch. 5 |
| Week 4| Hedging with Futures                                                | • Hedging without Basis Risks  
• Hedging with Basis Risk  
• Estimation of Hedge Ratio | Ch. 3 |
| Week 5| Interest Rate Futures                                                | • Term Structure of Interest Rate  
• Interest Rate Futures Contracts  
• Hedging with Interest Rate Futures | Ch. 4 & Ch. 6 |
| Week 6| Swap                                                                | • Interest Rate and Currency Swaps  
• Valuation of Swaps | Ch. 7 |
| Week 7| Mid-Session Examination (September 5, 2007)                         |                                                                         |             |
| Week 8| Fundamentals of Options                                             | • Mechanics of Options Markets  
• Option Pricing Restriction: Arbitrage Relations  
• Upper and Lower Bounds for Option Prices  
• Put-Call Parity | Ch. 8 & 9 |
| Week 9| Trading Strategies Involving Options                                | • Strategies Involving a Single Option and a Stock  
• Spreads |             |
• Combinations

Hull: Ch.10

Week 9-10  Binomial Option Pricing Model
• Single-Period Model
• Multi-Period Model

Hull: Ch.11 & 17

Week 11 - 12  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, &19

Week 13  Options on Stock Indices, Currencies, and Futures
• Specification of Contracts
• Valuations

Hull: Ch. 14

Week 14  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. 15: 15.2 - 15.6, 15.14, 15.25