

THE UNIVERSITY OF
NEW SOUTH WALES



School of Economics

ECON3107/ECON5106

**ECONOMICS OF FINANCE /
FINANCIAL ECONOMICS**

Course Outline
Session 1, 2009

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1. STAFF CONTACT DETAILS

Lecturer-in-charge: Dr Alexandre Dmitriev
Office: Quad 3117
Phone No: 9385 3351
Email: a.dmitriev@unsw.edu.au
Consultation Times – Thursdays 2-5pm (or by appointment)

Tutor: Hong-il Yoo (email: h.yoo@student.unsw.edu.au)

1.1 Communication with Staff

Email is the recommended means of initial communication with the teaching staff for this course. The lecturers will hold regular office hours on Thursdays 2-5pm starting Week 2. You should feel free to approach your lecturer about any academic matter. The information concerning administrative matters may also be obtained from the School of Economics Office, level 4, ASB building.

2. COURSE DETAILS

2.1 Teaching Times and Locations

Lectures:	Tuesday	5-7pm	Old Main Building 149 (K-K15-149)
Tutorials:	Tuesday	4-5pm	Australian School of Business 105
		7-8pm	Australian School of Business 118
	Wednesday	10-11am	Mathews 102 (K-F23-102)
		12-1pm	Australian School of Business 219
		1-2pm	Law 201 (K-F8-201)
	2-3pm	Goldstein G07 (K-D16-G07)	

Tutorials will start in **week 1**. The tutor will use the tutorials to go through the tutorial exercises.

2.2 Units of Credit

Units of Credit: 6
Contact hours per week: 3

2.3 Summary of Course

The aim of the course is to develop an understanding of how new financial assets come into being and how they are priced. This is the concern of what is now known as Financial Engineering. The course is also concerned with how investors can construct efficient portfolios of assets so as to achieve a desired trade-off between risk and return.

2.4 Course Aims and Relationship to Other Courses

The course aims to provide benefits to students in terms of:

1. The ability to understand the factors that should be brought to bear to assess the value (or price) of a newly introduced asset whose payoffs are contingent on certain outcomes.
2. Knowledge of some standard asset pricing models and their usefulness in financial decision making.
3. The ability to apply programming tools such as MATLAB to real world derivative pricing.

This course is offered as part of the economics stream for post-graduate students in the M.Com program and for undergraduate students in the B.Com and B.Econ degrees. Because ECON2101 (Microeconomics II) provides an introduction to neoclassical economic analysis, it is the natural prerequisite undergraduate students taking ECON3107. For M.Com students, ECON5203 Data, Models and Decisions is a pre-requisite.

2.5 Student Learning Outcomes

On completion of the course, students should be able to:

1. List and explain the principles underlying the pricing of new financial assets whose payoffs are contingent on certain outcomes.
2. Demonstrate more generally the pricing of contingent contracts. For example, a financial option is an asset whose payoffs are contingent and thus can be priced in a contingent claims setting.
3. Identify and explain the principles that lead to the efficient formation of portfolios of stocks.
4. Use MATLAB programming environment to apply asset pricing relations derived from theory.

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
1,2,3,4	1. Critical thinking and problem solving
2,3,4	2. Communication
4	3. Teamwork and leadership
1,2,3	4. Social, ethical and global perspectives
1,2,3,4	5. In-depth engagement with relevant disciplinary knowledge
1,2,3,4	6. Professional skills

3. LEARNING AND TEACHING ACTIVITIES

3.1 Approach to Learning and Teaching in the Course

The lectures, tutorials and assessment (see below) have been designed to challenge students and support the achievement of the desired learning outcomes. The course is designed to encourage a climate of inquiry and dialogue between students and teachers and among students (in and out of class). The lecturers and tutors aim to provide meaningful and timely feedback to students to improve learning outcomes. The philosophy underpinning this course and its Teaching and Learning Strategies (see 3.2 below) are based on “Guidelines on Learning that Inform Teaching at UNSW. These guidelines may be viewed at: www.guidelinesonlearning.unsw.edu.au.

An effective learning strategy (on which the course materials are based) is the following:

1. Prior to attending a lecture, download the lecture notes, read them and the relevant material from the textbook, bring the notes with you to the lecture.
2. Attend the lecture. The relevant material from the textbook forms the basis for the lecture. Key concepts will be emphasised and demonstrated through worked examples.
3. Prior to attending tutorials, attempt the assigned questions for that week. Do not be discouraged if you cannot answer all of the questions as some questions are more difficult than others. Attempting the assigned tutorial questions will provide a self-test of your understanding of particular topics and identify those topics which may require further attention. Tutors will work through the assigned tutorial questions each week.

3.2 Learning Activities and Teaching Strategies

The examinable content of the course is defined by the material covered in lectures, tutorials and problem sets.

Lectures

The purpose of lectures is to provide a logical structure for the topics that make up the course, to emphasise the important concepts and methods of each topic, and to provide relevant examples to which the concepts and methods are applied. As not all topics will be presented extensively, students should refer to the textbook for further details and be sure to attempt the tutorial exercises.

Tutorials

The object of the tutorials is to discuss various approaches to, and issues associated with the assigned exercises and topics covered in the course. Tutorial will also be used to administer short tests throughout the session. These tests will contribute to monitoring student progress as well as provide students with feedback on their learning.

Out-of-Class Study

While students may have preferred individual learning strategies, it is important to note that most learning will be achieved outside of class time. Lectures can only provide a structure to assist your study, and tutorial time is limited.

4. ASSESSMENT

4.1 Formal Requirements

In order to pass this course, you must:

- achieve a composite mark of at least 50 out of a maximum of 100;

4.2 Assessment Details

Assessment Task	Weighting	Learning Outcomes assessed	ASB Graduate Attributes assessed	Length	Due Date
Tutorial Assessments	10%	1,2,3,4	1,2,5,6	See Below	See Below
Mid-Session Exam	25%	1,2,3	1,2,6	2 hours	Week 6 Lecture
Final Exam	65%	1,2,3	1,2,6	3 hours	University Exam Period
	100%				

Tutorial Exercises

Two times during the session, you will be asked to submit your answers to assigned tutorial exercises. You will be given at least one week's notice of this.

The tutorial assessment mark out of 10 will be awarded on the basis of the spirit in which the student has attempted the two exercises. It is not necessary that your answers be absolutely correct but that you have demonstrated a genuine effort in answering the assigned tutorial exercises.

Mid-Session Examination

A mid-session exam will be held during the WEEK 6 lecture, on Tuesday 21 April, 2009. It will be of two hours in duration and will relate to the topics covered during the first five weeks of lectures. The purpose of the assessment is to test knowledge of the concepts introduced up to this point.

Note: There will be NO supplementary tests/exam offered for the Mid-Session Examination. You should make every effort to take the examination. Students who fail to attend the examination will need to apply for Special Consideration. Any student who, for reasons of **serious illness**, cannot attend an exam will need **full and**

convincing documentation of that illness. Students who are found to be genuinely too ill to have attended the exam will have their mark in the remaining assessment tasks re-weighted to include the mark reserved for the missed exam. In all other cases of non-attendance students will receive a grade of zero.

Special Consideration applications must be made within 3 days of the test/exam through NewsouthQ in the Chancellery and NOT through the lecturer-in-charge (you should advise the lecturer that you have made an application). You will need to provide full documentation of the reason for the absence (e.g., illness).

Employment obligations of any kind are not acceptable reasons for absence from any test/examination.

The final examination

During the final examination about 25% of questions will test material covered in Weeks 1 to 5 while the remaining 75% of questions will test material covered in Weeks 7 to 12. The duration of the final exam will be two hours. Be aware that your final examination may fall at any time during the semester's examination period. **The scheduling of examinations is controlled by the University administration.** No early examinations are possible. The examination period for Semester 1, 2009, falls between **12 and 27 June**.

Further information on the content of the Final Exam will be provided towards the end of session. The purpose of the final examination is to assess knowledge of basic concepts and tools of financial economics.

5. ACADEMIC HONESTY AND PLAGIARISM

The University regards plagiarism as a form of academic misconduct, and has very strict rules regarding plagiarism. For UNSW's 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

The prescribed text for the course is:

- William F. Sharpe, "*Macro-Investment Analysis*", Stanford University, manuscript.

This book has not yet been published. It can be downloaded free of charge from William Sharpe's website at: <http://www.stanford.edu/~wfsharpe/mia/mia.htm>

Other required readings include:

- Benninga, Simon (2000), "*Financial Modelling*" MIT Press (2nd edition), Chapter 14.
(This is the reference for the discussion of the binomial option pricing model.)
- Sigmon, Kermit (1992) "*MATLAB Primer*", Second Edition, Department of Mathematics, University of Florida.

(This is the reference for a crash course on programming using MATLAB. The manuscript will be available for download from the course website)

Suggested additional readings include:

- Luenberger, David G., (1998), “*Investment Science*”, Oxford University Press (This is a very useful though somewhat advanced textbook)
- Sharpe, William F., “Nuclear Financial Economics” in William H. Beaver and George Parker, eds., “*Risk Management: Problems & Solutions*”, McGraw-Hill, 1995, pp. 17-35.
(This is a nice survey article on the pricing of contingent claims that summarizes many of the ideas in the first couple of chapters of the course textbook. The manuscript can be downloaded from William Sharpe’s website at <http://www.stanford.edu/~wfsharpe/art/RP1275.pdf>)

Additional materials such as solutions to the tutorial exercises, MATLAB codes, MATLAB tutorials etc. will be provided in WebCT. The course website can be accessed through the following address: <http://vista.elearning.unsw.edu.au>

The software for the course is MATLAB 2008b release by Mathworks Inc. This software is installed in the following labs:

Quad Lab 3 – 1043; Quad Lab 4 – 1035; Quad Lab 5 – 1031; Quad Lab 6 – 1030; Quad Lab 7 – 1023; Quad Lab 10 - 1038

7. COURSE EVALUATION AND DEVELOPMENT

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 is one of the ways in which student evaluative feedback is gathered. Based on previous comments by students we are providing students with more opportunities to practice their problem solving skills.

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 is expected that you 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 you need to complete assignments or prepare for examinations, the workload may be greater.

Over-commitment has been a cause of failure for many students. You should take the required workload into account when planning how to balance study with employment and other activities.

8.2 Attendance

Your regular and punctual attendance at lectures and seminars 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.

8.3 Special Consideration and Supplementary Examinations

UNSW Policy and Process for Special Consideration

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

- 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 that 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 the case of undergraduate students in the ASB, requests for special consideration are determined by a Faculty wide panel. If the Faculty panel 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.

The 'ASB Policy and Process for Special Consideration and Supplementary Exams in Undergraduate Courses' is available at:

<http://wwwdocs.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:

- **Economics Pit Stop**

The Economics Pit Stop is designed to provide convenient tutor assistance for students in the large Economics courses such as ECON 3107/5106. This means that instead of having to wait until your lecturer's consultation time, you will be able to get help as soon as you run into a problem in your study.

The Pit Stop contact details are:

Location: Quadrangle Building Room 3113

Times: Tuesday-Thursday (10am-6pm) from week 3

Phone: (02) 9385 1346

Email: tutcentre@unsw.edu.au

Pit Stop tutors will give help over the phone or through email when they can, but will give priority to students who attend in person. A Pit Stop timetable will be posted on the Economics website before the start of week 2.

- **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

- **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

Week 1 - (Tuesday, 10 March 2009) – Matrices and programming

Topics: Matrices; Matrix operations; Programming in MATLAB; Asset allocation with investment funds

References: Sharpe text, Ch. 2; Kermit (1992)

Week 2 - (Tuesday, 17 March 2009) – Prices II

Topics: Time-state claims; Valuation; Multiple commodities, states and times

References: Sharpe text, Ch. 3

Week 3 - (Tuesday, 24 March 2009) – Prices III

Topics: Multiple commodities, states and times (contd.)

References: Sharpe text, Ch. 3

Week 4 - (Tuesday, 31 March 2009) – Prices IV

Topics: Multiple commodities, states and times (contd.); Interest rate & bond yields; Forward prices

References: Sharpe text, Ch. 3

Week 5 (Tuesday 7 April, 2009) – Probabilities I

Topics: Binomial Option Pricing;

References: Sharpe text, Ch. 4; Benninga (1998), Ch. 14

Week 6 (Tuesday 21 April, 2009) – Mid Session Exam

Week 7 (Tuesday 28 April, 2009) – Probabilities II

Topics: Production, Consumption and Market Clearing

References: Sharpe text, Ch. 4

Week 8 (Tuesday 5 May, 2009) – Probabilities III

Topics: Risk Premia; Consumption and Investment Choices

References: Sharpe text, Ch. 4

Week 9 (Tuesday 12 May, 2009) – Probabilities IV

Topics: Risk Premia; Consumption and Investment Choices

References: Sharpe text, Ch. 4; Lecture Notes

Week 10 (Tuesday 19 May, 2009) – Risk and Return I

Topics: Portfolio Choice; Portfolio Characteristics

References: Sharpe text, Ch. 5

Week 11 (Tuesday 26 May, 2009) – Risk and Return II

Topics: Portfolio Choice; Portfolio Characteristics (contd.)

References: Sharpe text, Ch. 5

Week 12 (Tuesday 2 June, 2009) – Risk and Return III

Topics: Two-asset Portfolios

References: Sharpe text, Ch. 5