



THE UNIVERSITY OF
NEW SOUTH WALES
SYDNEY • 2052 • AUSTRALIA

SCHOOL OF BANKING & FINANCE

FINS5517 APPLIED PORTFOLIO MANAGEMENT AND MODELLING **Course Outline for Session 1, 2005**

OBJECTIVE

This subject covers the essential analytical and quantitative tools that are necessary for funds management. It aims at showing how to carry out the computations and simulations needed to implement commonly used models in funds management. The focus of the subject is on passive and active funds management, and the use of derivatives in funds management. The course covers a wide range of financial models in the areas of investment analysis, portfolio theory, portfolio risk management and investment style analysis. It also focuses on the recent advances in derivatives pricing methods in conjunction with their tactical and strategic applications. An essential component of this course involves the use of Excel to apply the concepts to market data.

PREREQUISITES

It is the responsibility of the student to ensure that the prerequisites have been met before commencing this course. These are: ECON5103 Business Economics, ECON5203 Statistics for Business and FINS5513 Security Valuation and Portfolio Selection (allowed as co-requisite).

CLASSES (refer to website for last minute changes in time and location)

Wednesday	15:00 – 18:00	Mat D
Thursday	18:00 – 21:00	Law 1042

LECTURER

	e-mail	Office	Telephone	Consultation hours
Dr. Thomas Henker*	(t.henker@unsw.edu.au)	QUAD 3023b	9385-5854	Thu 17:00 – 18:00 Wed 14:00 – 15:00

* lecturer-in-charge

WORKLOAD EXPECTATIONS

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, performing computer tasks 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.

ASSESSMENT

Assignment	20%
Quiz	10%
Midsession Exam	30%
Final Exam	40%

(Students may form teams of at most 3 people for the assignment).

FAILURE TO SIT AN EXAMINATION

Students should notify employers of the requirement to attend examinations. If you miss any of the class tests (for any reason - employment, sickness, timetable clashes etc.), then in **exceptional** circumstances you may be permitted to sit the missed section at a future date when the school offers supplementary examinations. You should talk with the lecturer about this beforehand if you are in doubt. If you are enrolled in the class, you are expected to take scheduled examinations. Failure to show does not automatically lead to reassessment.

USE OF ELECTRONIC CALCULATORS DURING CLASS EXAMINATIONS

Students may use their own electronic/scientific calculator for examination purposes. It is to have functionality not significantly different in sophistication to a CASIO-FX80 or Hewlett Packard BAI plus, which is the standard adopted by UNSW. Note that hand-held computers, Apple Newtons, personal information managers or devices with a full alpha-numeric keypad or with character recognition are strictly prohibited. Failure to follow this requirement and use of an unprescribed aid during an examination is a serious offence and will be regarded as academic misconduct. If you are unsure about the calculator you use please come and discuss this with the lecturer prior to the day of the examination.

CLASS ANNOUNCEMENTS

You will be able to obtain the latest announcements via a web page set up for this class. The web-site address is located at <http://webct.edtec.unsw.edu.au>.

REQUIRED TEXT AND READINGS

Benninga, S. (2000), *Financial Modeling*, MIT Press (2nd edition)

Farrell, J.L.jr (1997), *Portfolio Management: Theory & Application*, McGraw-Hill.

Lecture notes and supplementary articles.

All of these will be made available in the Open Reserve of the library

REFERENCE BOOKS

Bodie, Z., Kane, A., A.J. Marcus, *Investments*, 4th or 5th edition, Irwin Publishers.

Hull, J., *Options, Futures and Other Derivative Securities*, 3rd, 4th, or 5th edition, Prentice Hall.

Reilly and Brown, *Investment Analysis and Portfolio Management*, 5th or 6th edition, Dryden Press.

COURSE FORMAT

Lectures will be presented as a mix of theory, computer demonstrations, and discussion exercises. The computer demonstrations aim to give students the opportunity to learn how to solve problems in relation to lecture material, as well as the problems encountered in the assignments. Students will benefit from reading lecture material before class and coming to class prepared to participate in class discussion.

Please note that attendance in lectures, computer sessions and examinations is required under the guidelines for the BCom degree.

INFORMATION CONCERNING STUDENT CONDUCT & RESPONSIBILITIES

Students should be aware of general university, faculty and school rules that are discussed in detail in the UNSW Calendar. However, I draw your attention to the following issues that are particularly relevant to this course.

STUDENT SUPPORT THROUGH EDUCATION DEVELOPMENT UNIT

Additional learning support, tailored to the needs of FCE students, is available from the Education Development Unit (EDU) in the Faculty. The EDU offers a range of services for FCE students including:

- o Academic skills workshops run throughout the session;
- o Printed and on-line study skills resources e.g. referencing guide, report writing and exam preparation;
- o A drop-in resource centre containing books and audio visual material that can be borrowed;
- o A limited consultation service for students with individual or small group learning needs.

More information about the EDU services including on-line resources, workshop details and consultation request forms are available from the EDU website.

EDU Web: <http://education.fce.unsw.edu.au>

EDU Location: Room 2039, Level 2 Quadrangle Building

EDU services are free and confidential and are available to students of the Faculty of Commerce and Economics.

OTHER UNSW SUPPORT

In addition to the EDU services, the UNSW Learning Centre provides academic skills support services for students. The Learning Centre is located on Level 2 of the Library and can be contacted by Phone: 9385 3890 or through their website: <http://www.lc.unsw.edu.au/>. Students experiencing problems of an academic or personal nature are encouraged to contact the Counselling Service at UNSW. This service is free and confidential and run by professional counsellors. The Counselling Service is located on Level 2, Quadrangle East Wing, and can be contact on 9385 5418.

SPECIAL CONSIDERATION

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 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. This application explains the specific information the University requires in order to make a decision.

Such requests should be lodged as soon as practicable after the occurrence and in any event no more than three days after the final examination in a subject.”

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 three (3) days of any event for which special consideration is sought.

Students should be aware that 'minor' ailments are not eligible grounds for special consideration. Any unsubstantiated request for special consideration will be considered to be 'minor'.

Students are expected to complete their work in a timely manner so that an illness in the last few days will not jeopardise the submission of their assignment. Such illness will not constitute grounds for special consideration.

SUPPLEMENTARY EXAMINATION

An application for special consideration does not guarantee an offer of supplementary examination and/or a pass in the subject. The Examination Assessment Committee will decide on whether a supplementary examination is to be granted.

If a student is granted a supplementary examination but does not attend that supplementary examination, he/she will not be granted further assessment except in exceptional circumstances.

Students are advised that if they are intending to travel overseas at the end of this session/year, they should consider taking out travel insurance which allows supplementary examinations as valid circumstances for canceling travel.

IF YOU SUSPECT THAT YOU HAVE A DISABILITY

The Equity Officer (Disability) can be contacted at the Equity & Diversity Unit, on 9385 4734 or by email L.Alsop@unsw.edu.au
The Equity & Diversity Unit website is at <http://www.equity.unsw.edu.au/>

PLAGIARISM RULES OF THE UNIVERSITY

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 summarized, 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.

The FCE site with comprehensive information about the university policy on plagiarism is:

http://www/fec.unsw.edu.au/current_students/responsibilities.shtml#misconduct

Lecture outline

Part 1 – EQUITY PORTFOLIO MANAGEMENT

Weeks 1-2: Portfolio Theory and Application

- Covariance and correlation between stocks
- Return and variance of a portfolio
- Diversification benefits and limits: unsystematic and market risk
- Optimal weights for each level of risk: the efficient frontier
- Indifference curves of individual investors to choose the optimal portfolio
- Matrix manipulation (theory and Excel)
- Computing the efficient frontier in Excel

Reading: *Benninga Chapters 7-9, Farrell Chapter 2*

Weeks 3-4: SIM and CAPM

- Introduction of the risk-free asset, Capital Market Line (CML)
- Market portfolio on the efficient frontier
- Assumptions underlying the Capital Asset Pricing Model (CAPM)
- Valuation of (in)efficient portfolios: Security Market Line (SML)
- Total risk (CML) versus systematic risk (SML)
- Problems with the CAPM, e.g. what is the market?
- Adjustments to CAPM: no risk-free asset, different borrowing/lending
- Linear Regression (theory and Excel)
- Estimation of beta: time-variation, measurement error, fundamental methods

Reading: *Markman: “A whole lot of %&)^%^”, Benninga Chapters 10-11, Farrell Chapter 3 and 4*

WEEK 4: QUIZ in class
1 hour, multiple choice

Weeks 5-6: APT, Index tracking

- Assumptions underlying the Arbitrage Pricing Theory (APT)
- Multi-factor return generating process
- Index tracking
- APT Pro

Reading: *Chan, Karceski, Lakonishok: “On Portfolio Optimization: Forecasting Covariances and Choosing the Risk Model”*

Week 7: MID-SESSION EXAMINATION

In class during regular lecture time
(based on lectures 1-6)

Part 2 – ASSET MANAGEMENT

Week 8: Asset Management Strategies

- Active versus passive strategies
- Disciplined stock selection, measuring predictive ability
- Translating stock rankings into excess return forecasts
- Long/Short strategies; Strategic and Tactical Asset Allocation

Reading: *Farrell Chapters 8-9*

Week 9: Asset mix and Futures in Asset Management

- Asset mix management: theory, practitioners approach, and academic suggestion
- Definition and terms of a futures contract; Marking-to-market and liquidity reserve
- Link between futures and spot prices
- Changing the beta of the portfolio, sector allocation, and alpha capture

Reading: *Farrell Chapter 12; Hull: Chapter on “Forward and Futures contracts”*

Part 3 – DERIVATIVES IN PORTFOLIO MANAGEMENT

Week 10: Introduction to Options and Option Trading Strategies

- Futures: Changing the beta of the portfolio, sector allocation and alpha capture
- Definition and terms of an option (assumed knowledge: Section 3.1 up to page 53)
- Bull and bear spreads, straddles and trading volatility
- ‘Free insurance’: Buy out-of-the-money puts and sell out-of-the-money calls

Reading: *Benninga Chapter 13*

Week 11: The Black-Scholes model

- The log-normal distribution; Monte Carlo simulation of stock prices
- The Black-Scholes model
- Calculating the volatility of stock prices from actual data vs implied volatility

Reading: *Benninga Chapters 15-16*

First assignment DUE in class in week 11 One paper hardcopy assignment from each group. Late submissions incur a 5 mark penalty per day.
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Weeks 12-13: Portfolio Insurance

- Limitations of listed put options
- Roll-over strategies for longer maturities
- Financing the put: selling some shares, or borrowing money
- Guaranteeing a minimum floor: optimal exercise price and number of puts
- Dynamic hedging: creating your own put; Using index-futures for dynamic hedging
- Constructing dynamic hedging schemes in Excel

Reading: *Benninga Chapter 17; Hull Chapter on ‘Hedging the risk of options’*

Week 14: Revision