FINS5542
Applied Funds Management

Course Outline
Semester 2, 2015

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PART A: COURSE-SPECIFIC INFORMATION

1 STAFF CONTACT DETAILS

Lecturer-in-charge: Dr Jonathan Reeves  
Room: UNSW Business School Building Rm. 369  
Phone No: 9385 5874  
Email: reeves@unsw.edu.au  
Consultation Times: Monday 5pm-6pm or by appointment

2 COURSE DETAILS

2.1 Teaching Times and Locations
Lectures start in Week 1 (to Week 12): The Time and Location are:  
Stream 1: Monday 6pm-9pm. Mech Eng 202 and Lab Sessions in Quad Lab 1.  
Stream 2: Tuesday 11am-2pm. Old Main Building 145A and Lab Sessions in Quad Lab 1.

2.2 Units of Credit
The course is worth 6 units of credit and contact of 3 hours per week.

2.3 Summary of Course
Laboratory and theoretical based course that develops fundamental concepts of asset valuation in a world with time varying risk, in order to construct and manage an investment portfolio. The course focuses on the recent advances in quantitative finance including risk modelling, forecasting, portfolio construction and evaluation. The aim is to provide students with a practitioner-orientated view of asset management where concern is based on generating superior returns. Topics focus primarily on empirical and practical tools required to actively manage an investment over time through the extensive use of computer spreadsheets.

2.4 Course Aims and Relationship to Other Courses
This subject provides an introduction to quantitative investment management with a strong emphasis upon computation. Modern quantitative techniques are employed that are used extensively in an applied context. Measuring, modeling and forecasting key financial parameters are essential elements in the delivery of the course, which are important for successful management of investment portfolios, including equity and hedge fund portfolios. Students are expected to develop their quantitative skills using modern statistical software such as Ox and STATA. The course builds on the finance concepts learnt in introductory investments with stronger emphasis on computing. FINS5513 or equivalent is the pre or co requisite.
2.5 Student Learning Outcomes

By the end of this course, you should be able to:

1) Have a working knowledge of quantitative investment management with both a matrix programming language (Ox) and statistical software (Stata).
2) Discuss and write reports from analyzing quantitative financial data.
3) Conduct independent evaluation of quantitative methods in investments, such as assessing the performance of a risk management method for investment portfolios.
4) Collaborate with other class members, working as a team.
5) Present research results in an oral presentation.

The Course Learning Outcomes are what you should be able to DO by the end of this course if you participate fully in learning activities and successfully complete the assessment items.

The Learning Outcomes in this course also help you to achieve some of the overall Program Learning Goals and Outcomes for all postgraduate coursework students in the Business School. Program Learning Goals are what we want you to BE or HAVE by the time you successfully complete your degree (e.g. 'be an effective team player'). You demonstrate this by achieving specific Program Learning Outcomes - what you are able to DO by the end of your degree (e.g. 'participate collaboratively and responsibly in teams').

For more information on the Postgraduate Coursework Program Learning Goals and Outcomes, see Part B of the course outline.
The following table shows how your Course Learning Outcomes relate to the overall Program Learning Goals and Outcomes, and indicates where these are assessed (they may also be developed in tutorials and other activities):

<table>
<thead>
<tr>
<th>Program Learning Goals and Outcomes</th>
<th>Course Learning Outcomes</th>
<th>Course Assessment Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>This course helps you to achieve the following learning goals for all Business postgraduate students:</td>
<td>On successful completion of the course, you should be able to:</td>
<td>This learning outcome will be assessed in the following items:</td>
</tr>
<tr>
<td>1 Knowledge</td>
<td>Explain standard approaches to quantitative analysis in investments.</td>
<td>• Assignments</td>
</tr>
<tr>
<td></td>
<td>Use quantitative methods in investment with computing skills in a matrix programming language and a statistical software package.</td>
<td></td>
</tr>
<tr>
<td>2 Critical thinking and problem solving</td>
<td>Evaluate methods of quantitative analysis</td>
<td>• Assignments</td>
</tr>
<tr>
<td>3a Written communication</td>
<td>Construct written work which is logically and professionally presented.</td>
<td>• Assignments</td>
</tr>
<tr>
<td>3b Oral communication</td>
<td>Communicate ideas in a succinct and clear manner.</td>
<td>• Oral presentation</td>
</tr>
<tr>
<td>4 Teamwork</td>
<td>Work collaboratively to complete a task.</td>
<td>• Group Assignment</td>
</tr>
<tr>
<td>5a. Ethical, social and environmental responsibility</td>
<td>Not specifically addressed in this course.</td>
<td></td>
</tr>
<tr>
<td>5b. Social and cultural awareness</td>
<td>Not specifically addressed in this course.</td>
<td></td>
</tr>
</tbody>
</table>

### 3 LEARNING AND TEACHING ACTIVITIES

#### 3.1 Approach to Learning and Teaching in the Course

This course introduces quantitative methods used in applied portfolio management through lectures and lab sessions.

#### 3.2 Learning Activities and Teaching Strategies

This course consists of weekly 3 hour sessions delivered through lectures and lab time. Learning outcomes are from programming experience and report presentation, both written and oral.
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

Three assignments, equally weighted.
To summarise, the breakdown of marks are:

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Weighting</th>
<th>Length</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>33.33%</td>
<td></td>
<td>Week 6</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>33.33%</td>
<td></td>
<td>Week 9</td>
</tr>
<tr>
<td>Assignment 3</td>
<td>33.33%</td>
<td></td>
<td>Week 12</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assignment 1 is on technical analysis with the matrix programming language Ox, providing written analysis of results. Assignment 2 continues with Ox programming and covers material up to and including Value-at-Risk methods, with critical evaluation of various methods. Assignment 3 is a group assignment covering multi-factor models estimated with the statistical software, Stata and volatility and beta estimation, including a group presentation.

4.3 Assessment Format

It is expected that all assignments be word processed.

4.4 Assignment Submission Procedure

It is advisable to keep a duplicate copy of all works submitted for assessment. Assignments will be submitted to the School of Banking and Finance Assignments box, located on the ground level of UNSW Business School. The assignment box number will be announced closer to the submission date.

4.5 Late Submission

Assignments submitted late will have marks deducted.

Quality Assurance

The Business School is actively monitoring student learning and quality of the student experience in all its programs. A random selection of completed assessment tasks may be used for quality assurance, such as to determine the extent to which program learning goals are being achieved. The information is required for accreditation purposes, and aggregated findings will be used to inform changes aimed at improving the quality of Business School programs. All material used for such processes will be treated as confidential.
5 COURSE RESOURCES
Lecture materials will be provided on Moodle.

6 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. In addition lab work and presentations provide further feedback.

7 COURSE SCHEDULE
Introduction (1 week)

2. **Computing: Matrix Programming: Ox (1 week)**
   
   Ref: “Introduction to Ox” by J. Doornik and M. Ooms.  
   http://www.doornik.com/ox/

3. **Technical Analysis, Including Moving Average Rules and Relative Strength Indexes (1 week)**
   
   Ref: “Paul Wilmott Introduces Quantitative Finance”, Appendix B

   

5. **Review of Basic Statistics and Regression Analysis, Including Hypothesis Testing, and Introduction to the Statistical Package: Stata (2 weeks)**
   
   Ref: “Econometric Analysis” by W. Greene

6. **Time Series Models, Including AR, MA and ARIMA (1 week)**
   
   Ref: “Econometric Analysis” by W. Greene

7. **Multi-Factor Models and Construction of Factor Portfolios (2 weeks)**
   


8. **Measuring, Modeling and Forecasting of Beta (Systematic Risk) and Volatility Risk, Including Realized Beta Estimators and Realized Volatility Estimators (2 weeks)**
   

PART B: KEY POLICIES, STUDENT RESPONSIBILITIES AND SUPPORT

8 PROGRAM LEARNING GOALS AND OUTCOMES

The Business School Program Learning Goals reflect what we want all students to BE or HAVE by the time they successfully complete their degree, regardless of their individual majors or specialisations. For example, we want all our graduates to HAVE a high level of business knowledge, and a sound awareness of ethical, social, cultural and environmental implications of business. As well, we want all our graduates to BE effective problem-solvers, communicators and team participants. These are our overall learning goals for you and are sought after by employers.

You can demonstrate your achievement of these goals by the specific outcomes you achieve by the end of your degree (e.g. be able to analyse and research business problems and propose well-justified solutions). Each course contributes to your development of two or more program learning goals/outcomes by providing opportunities for you to practise these skills and to be assessed and receive feedback.

Program Learning Goals for undergraduate and postgraduate students cover the same key areas (application of business knowledge, critical thinking, communication and teamwork, ethical, social and environmental responsibility), which are key goals for all Business students and essential for success in a globalised world. However, the specific outcomes reflect different expectations for these levels of study.

We strongly advise you to choose a range of courses which assist your development of these skills, e.g., courses assessing written and oral communication skills, and to keep a record of your achievements against the Program Learning Goals as part of your portfolio.

<table>
<thead>
<tr>
<th>Business Postgraduate Coursework Program Learning Goals and Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Knowledge: Our graduates will have current disciplinary or interdisciplinary knowledge applicable in local and global contexts. You should be able to identify and apply current knowledge of disciplinary or interdisciplinary theory and professional practice to business in local and global environments.</td>
</tr>
<tr>
<td>2. Critical thinking and problem solving: Our graduates will have critical thinking and problem solving skills applicable to business and management practice or issues. You should be able to identify, research and analyse complex issues and problems in business and/or management, and propose appropriate and well-justified solutions.</td>
</tr>
<tr>
<td>3. Communication: Our graduates will be effective communicators in professional contexts. You should be able to:</td>
</tr>
<tr>
<td>a. Produce written documents that communicate complex disciplinary ideas and information effectively for the intended audience and purpose, and</td>
</tr>
<tr>
<td>b. Produce oral presentations that communicate complex disciplinary ideas and information effectively for the intended audience and purpose.</td>
</tr>
<tr>
<td>4. Teamwork: Our graduates will be effective team participants. You should be able to participate collaboratively and responsibly in teams, and reflect on your own teamwork, and on the team's processes and ability to achieve outcomes.</td>
</tr>
<tr>
<td>5. Ethical, social and environmental responsibility: Our graduates will have a sound awareness of ethical, social, cultural and environmental implications of business issues and practice. You should be able to:</td>
</tr>
</tbody>
</table>
| a. Identify and assess ethical, environmental and/or sustainability considerations in business decision-
9 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: https://student.unsw.edu.au/plagiarism as well as the guidelines in the online ELISE tutorials for all new UNSW students: http://subjectguides.library.unsw.edu.au/elise

To see if you understand plagiarism, do this short quiz: https://student.unsw.edu.au/plagiarism-quiz

For information on how to acknowledge your sources and reference correctly, see: https://student.unsw.edu.au/harvard-referencing

For the Business School Harvard Referencing Guide, see the Business Referencing and Plagiarism webpage (Business >Students>Learning support> Resources>Referencing and plagiarism).


10 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 UNSW Current Students ‘Managing your Program’ webpages: https://student.unsw.edu.au/program.

10.1 Workload

It is expected that you will spend at least nine to ten hours per week studying this course. This time should be made up of reading, research, working on exercises and problems, online activities 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.

We strongly encourage you to connect with your Moodle course websites in the first week of semester. Local and international research indicates that students who engage early and often with their course website are more likely to pass their course.

Information on expected workload: https://student.unsw.edu.au/uoc
10.2 Attendance
Your regular and punctual attendance at lectures and seminars is expected in this course. University regulations indicate that if students attend less than 80% of scheduled classes they may be refused final assessment. For more information, see: https://student.unsw.edu.au/attendance

10.3 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: https://student.unsw.edu.au/conduct

10.4 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 http://www.ohs.unsw.edu.au/.

10.5 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.

11 SPECIAL CONSIDERATION
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.

General information on special consideration for undergraduate and postgraduate courses:
1. All applications for special consideration must be lodged online through myUNSW within 3 working days of the assessment (Log into myUNSW and go to My Student Profile tab > My Student Services > Online Services > Special Consideration). You will then need to submit the originals or certified copies of your completed Professional Authority form (pdf - download here) and other supporting documentation to Student Central. For more information, please study carefully in advance the instructions and conditions at: https://student.unsw.edu.au/special-consideration
2. Please note that documentation may be checked for authenticity and the submission of false documentation will be treated as academic misconduct. The School may ask to see the original or certified copy.
3. Applications will not be accepted by teaching staff. The lecturer-in-charge will be automatically notified when you lodge an online application for special consideration.
4. Decisions and recommendations are only made by lecturers-in-charge (or by the Faculty Panel in the case of UG final exam special considerations), not by tutors.
5. Applying for special consideration does not automatically mean that you will be granted a supplementary exam or other concession.
6. Special consideration requests do not allow lecturers-in-charge to award students additional marks.

Business School, and the School of Banking and Finance policy on requests for special consideration for Final Exams in undergraduate and postgraduate courses:
The lecturer-in-charge will need to be satisfied on each of the following before supporting a request for special consideration:

1. Does the medical certificate contain all relevant information? For a medical certificate to be accepted, the degree of illness, and impact on the student, must be stated by the medical practitioner (severe, moderate, mild). A certificate without this will not be valid.

2. Has the student performed satisfactorily in the other assessment items? Satisfactory performance would require at least 50% in each major assessment item specified in the Course outline and meeting the obligation to have attended 80% of tutorials or Lectures.

3. Does the student have a history of previous applications for special consideration? A history of previous applications may preclude a student from being granted special consideration.

Special consideration and the Final Exam and mid-session examinations in undergraduate and postgraduate Banking and Finance courses:
Applications for special consideration in relation to the final exam are considered by a Business School Faculty panel to which lecturers-in-charge provide their recommendations for each request. If the Faculty panel grants a special consideration request, this will entitle the student to sit a supplementary examination. No other form of consideration will be granted. The following procedures will apply:

1. Final Supplementary exams will be scheduled centrally and will be held approximately two weeks after the formal examination period. The dates for Business School supplementary exams for Semester 2, 2015 are: 9th December – exams for all Schools except Accounting and Economics If a student lodges a special consideration for the final exam, they are stating they will be available on the above dates. Supplementary exams will not be held at any other time.

2. 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 be ignored and only the mark achieved in the supplementary examination will count towards the final grade. Failure to attend the supplementary exam will not entitle the student to have the original exam paper marked and may result in a zero mark for the final exam.

If you attend the regular final exam, you are extremely unlikely to be granted a supplementary exam. Hence if you are too ill to perform up to your normal standard in the regular final exam, you are strongly advised not to attend. However, granting of a
supplementary exam in such cases is not automatic. You would still need to satisfy the criteria stated above.

The Business School’s Special Consideration and Supplementary Examination Policy and Procedures for Final Exams for Undergraduate Courses is available at: www.business.unsw.edu.au/Students-Site/Documents/supplementary_exam_procedures.pdf.

12 STUDENT RESOURCES AND SUPPORT
The University and the Business School provide a wide range of support services for students, including:

- **Business School Education Development Unit (EDU)**
  [https://www.business.unsw.edu.au/students/resources/learning-support](https://www.business.unsw.edu.au/students/resources/learning-support)
  The EDU provides academic writing, study skills and maths support specifically for Business students. Services include workshops, online resources, and individual consultations. EDU Office: Level 1, Room 1033, Quadrangle Building. Phone: 9385 5584; Email: edu@unsw.edu.au.

- **Business Student Centre**
  [https://www.business.unsw.edu.au/students/resources/student-centre](https://www.business.unsw.edu.au/students/resources/student-centre)
  Provides advice and direction on all aspects of admission, enrolment and graduation. Office: Level 1, Room 1028 in the Quadrangle Building; Phone: 9385 3189.

- **Moodle eLearning Support**
  For online help using Moodle, go to: [https://student.unsw.edu.au/moodle-support](https://student.unsw.edu.au/moodle-support). For technical support, email: itservicecentre@unsw.edu.au; Phone: 9385 1333.

- **UNSW Learning Centre**
  [www.lc.unsw.edu.au](http://www.lc.unsw.edu.au)
  Provides 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/web/services/services.html](http://info.library.unsw.edu.au/web/services/services.html)

- **IT Service Centre**: Provides technical support for problems logging in to websites, downloading documents etc. [https://www.it.unsw.edu.au/students/index.html](https://www.it.unsw.edu.au/students/index.html) Office: UNSW Library Annex (Ground floor). Ph: 9385 1333.

- **UNSW Counselling and Psychological Services**
  [https://student.unsw.edu.au/wellbeing](https://student.unsw.edu.au/wellbeing) Provides support and services if you need help with your personal life, getting your academic life back on track or just want to know how to stay safe, including free, confidential counselling. Office: Level 2, East Wing, Quadrangle Building; Phone: 9385 5418; Email: counselling@unsw.edu.au

- **Student Equity & Disabilities Unit**
  [http://www.studentequity.unsw.edu.au](http://www.studentequity.unsw.edu.au)
  Provides 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; Phone: 9385 4734; Email: seadu@unsw.edu.au