ECON90033
Quantitative Analysis of Finance I

SUBJECT GUIDE

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GRADUATE SCHOOL OF
BUSINESS & ECONOMICS

THE UNIVERSITY OF
MELBOURNE
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Subject Outline

Introduction

Welcome to Quantitative Analysis of Finance 1. This course introduces current quantitative techniques used in empirical finance. Students will learn to apply these tools to model, estimate and forecast financial variables such as financial prices and returns. There is a big emphasis on applications, focusing on model building, estimation techniques, interpretation and evaluation of results, forecasting and forecast evaluation.

Applications will come from a variety of asset classes, including stock markets, FX, commodities, and bonds. Students will get the opportunity to learn how to implement these techniques using the EViews statistical software programme.

The technical aspect of the course will include topics such as:

- Estimation methods used in Finance;
- ARMA models;
- Unit root testing;
- GARCH models and volatility modeling;
- Forecasting and forecast evaluation
- VAR models;
- Cointegration and VECM;

Prescribed Reading (Compulsory)

The key reading for this subject is the lecture slides, which will be available on the LMS.

Reference Books (Optional)

There is no single textbook covering all the topics in the subject. The following textbook is the closest in level, content and approach to what will be covered in the lectures and tutorials. It also uses EViews for the examples covered. The lecture slides will be the primary resource though, so it is not required to purchase the textbook. If you can follow the lecture slides and work through the tutorials, then that should be sufficient to do well in the subject. However, if you feel like you need a textbook to supplement and help you understand the lecture slides then this is the textbook I would recommend:

Additionally, the following are also useful references for background reading:

  [UniM Giblin Eunson High Use, Call No. 330.015195 STOC]

  [UniM Giblin Eunson High Use, Call No. 330.015195 HILL]

### Prerequisite

ECON20003 Quantitative Methods 2 or equivalent.

### Contact Details

#### Learning Management System (LMS)

The first place that you should go to find subject information is the LMS. It can be found online at [http://www.lms.unimelb.edu.au](http://www.lms.unimelb.edu.au). To login, use the same username and password that you use to access your University of Melbourne email account.

This web page should be checked regularly for announcements. It is the primary source for information about lectures, tutorials, consultation hours, the mid-semester exam, the assignment, and the final exam.

#### Lecturer Contact Details

Your lecturer for ECON90033 is Barry Rafferty

Email: barry.rafferty@unimelb.edu.au

Consultation Hours: Thursday 9am-11am

Room: 352 FBE Building, 111 Barry Street

#### Tutor Contact Details

There are two tutors for the subject. They will hold weekly tutorials and have consultation times starting from week 2. Their contact details are:
Tutor: Jack Chan

Email: jack.chan@unimelb.edu.au

Consultation Hours: TBC

Room: TBC

Tutor: Bowei Li

Email: bowei.li@unimelb.edu.au

Consultation Hours: Wednesday 1pm-2pm

Room: 456 FBE Building, 111 Barry Street

Email Protocol

While academic staff endeavor to address queries received via email, it is more appropriate to resolve substantive questions during lectures and tutorials and during normal consultation hours. With this in mind, I encourage students to attend all lectures and tutorials and to familiarise themselves with the consultation hours offered in this subject.

Please note that staff are only able to respond to student emails coming from a University email address. Please do not use personal email addresses such as Yahoo, Hotmail or even business email addresses. Emails from non-University email addresses may be filtered by the University’s spam filter, which means that staff may not receive your email. All correspondence relating to this subject will only be sent to your University email address. Note that you must first activate your University email address before you can send or receive emails at that address. You can activate your email account at this link: http://accounts.unimelb.edu.au/.

Lectures and Tutorials

Lecture Time

Wednesday 5:15pm-7:15pm in C403 (Wright Theatre), Medical Building
# Lecture Schedule (Tentative)

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>4 March</td>
<td>Properties of Financial Data</td>
</tr>
<tr>
<td>2</td>
<td>11 March</td>
<td>Linear Regression in Finance</td>
</tr>
<tr>
<td>3</td>
<td>18 March</td>
<td>Dynamics in the Mean: ARMA Models</td>
</tr>
<tr>
<td>4</td>
<td>25 March</td>
<td>Stationarity and Unit Root Testing</td>
</tr>
<tr>
<td>5</td>
<td>1 April</td>
<td>Forecasting and Forecast Evaluation</td>
</tr>
<tr>
<td>6</td>
<td>15 April</td>
<td>Volatility Modelling: GARCH Models</td>
</tr>
<tr>
<td>7</td>
<td>22 April</td>
<td>Mid-Semester Exam (1 hour)</td>
</tr>
<tr>
<td>8</td>
<td>29 April</td>
<td>VAR Models (1): Concept and Specification</td>
</tr>
<tr>
<td>9</td>
<td>6 May</td>
<td>VAR Models (2): Interpretation</td>
</tr>
<tr>
<td>10</td>
<td>13 May</td>
<td>Cointegration and VECM (1): Concept and Specification</td>
</tr>
<tr>
<td>11</td>
<td>20 May</td>
<td>Cointegration and VECM (2): Johansen Test</td>
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<tr>
<td>12</td>
<td>27 May</td>
<td>Review and Exam Information</td>
</tr>
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## Lecture Slides

Lecture slides will be placed on the LMS page for this subject prior to each lecture. The lecture slides will be located under the heading “Lectures”.

## Echo System (Lecture Capture)

The lectures will be recorded and made available to students using the University’s Echosystem (Lecture Capture), which will be accessible in the LMS. Audio recordings of lectures delivered in this subject will be made available for review in the days following each lecture. Audio recordings of lectures allow you to revise lectures during the semester, or to review lectures in preparation for the mid-semester and final exams.

To listen to Lecture Capture recordings, you must install QuickTime 7 (or a later version) on your computer. Many students who use the lecture recordings find it helpful to be looking at the slides as they listen.
Please note that Lecture Capture recordings are not a substitute for attendance; rather they’re designed for revision. On rare occasions the system can fail to record the lecture due to technical reasons. In such cases, the lecture recording will not be made available.

**Tutorials**

Students are all expected to attend a 1-hour tutorial each week. Tutorials will commence in week 2 of teaching. Students must enrol in a tutorial via the Student Portal. If you need to change your allocated tutorial day or time, this should be done in the first two weeks. Students experiencing difficulties when enrolling in Tutorials should contact the Melbourne Business School (MBS) Student Centre, located on Level 4 of the Spot building at 198 Berkeley Street. Late enrolment will be handled by the MBS Student Centre. More information regarding timetables, including key dates and troubleshooting, can be found on the Faculty’s website: [http://fbe.unimelb.edu.au/csc/planning/timetables](http://fbe.unimelb.edu.au/csc/planning/timetables).

Tutorials are an important component in the course. One of the main objectives of the tutorials is for students to implement what they learn in the lectures using the EViews software. Students will complete computer-based exercises using EViews software during the tutorials. They will be very good preparation for the assignment. Tutorial question sheets will be available on the LMS prior to when each tutorial occurs. Students should try to work on the exercises themselves prior to the tutorials if possible. Solutions will be provided at the end of the week of the tutorial.

**Assessment**

**Mid-Semester Exam**

There will be a 1-hour mid-semester exam (15% of total marks), which will take place in class on Wednesday 22 April at 5:15pm. This will cover material from the first 5 lectures and the corresponding tutorials.

**Assignment**

There will be an assignment (25% of total marks) due on Thursday May 7 at 5:00pm. This will involve the use of the EViews software. Students can complete the assignment on their own or in a group of no more than 4 students. Students submitting the assignment as a group should include the names of each student who contributed to the assignment. Assignments submitted as a group will have equal marks allocated to each group member.

**Final Exam**

The final exam will be a 2-hour exam (60% of total marks), to be held during the exam period. It will cover material from the whole semester.
Plagiarism and Collusion

Presenting material from other sources without full acknowledgement (referred to as plagiarism) is heavily penalised. Penalties for plagiarism can include a mark of zero for the piece of assessment or a fail grade for the subject.

Plagiarism is the presentation by a student of an assignment identified as his or her own work even though it has been copied in whole or in part from another student’s work, or from any other source (e.g. published books, web-based materials or periodicals), without due acknowledgement in the text.

Collusion is the presentation by a student of an assignment as his or her own work when it is, in fact, the result (in whole or in part) of unauthorised collaboration with another person or persons. Both the student presenting the assignment and the student(s) willingly supplying unauthorised material are considered participants in the act of academic misconduct.

You are strongly encouraged to visit this site for more information: http://academichonesty.unimelb.edu.au/. The FBE Centre for Excellence in Learning and Teaching (CELT) has prepared a help sheet on avoiding plagiarism, which is available at: http://fbe.unimelb.edu.au/__data/assets/pdf_file/0012/659973/Avoiding_plagiarism.pdf.

Special Consideration

Students who have been significantly affected by illness or other serious circumstances during the semester may be eligible to apply for Special Consideration.

The following website contains detailed information relating to who can apply for Special Consideration and the process for making an application:

http://fbe.unimelb.edu.au/mbs/services/special_consideration

Using the Assignment Tool

The Assignment Tool allows students to submit their assignment online from home or from any of the student labs on campus.

Students are required to submit assignments in electronic format into the Assignment Tool via a link on the LMS page for this subject.

A student guide has been prepared on the use of the Assignment Tool. The guide provides instructions on how to submit individual assignments, how to form groups and submit group assignments. The guide can be downloaded here:

Late Submission

Late submission of an assignment is permitted only where an extension has been granted. Requests for an extension can be made via the LMS, a link to the online application form can be found in the Assignment Tool tab.

In order to ensure equality for all students, assignments must be completed within specified time limits. Late assignments, where approval for late submission has not been given, will be penalised at the rate of 10% per day, or part thereof, for up to 5 business days, at which point a mark of zero will be given.

Exam Policy

The Faculty requires that you are available for the entire examination period. Supplementary exams will not be provided in cases of absence during the examination period, unless the absence is due to serious illness or other serious circumstances. See the Special Consideration web site referred to above for more information. The examination period for this semester is from Tuesday 9 June until Friday 26 June.

Other Resources

Online Tutor

The Online Tutor allows you to direct questions to your lecturer or tutor via the LMS. The Online Tutor can be accessed 24 hours a day, 7 days a week. The Online Tutor will be moderated by a tutor who will attempt to answer your question within 24 hours (weekdays only).

Your questions and the answers can be accessed by all students in the subject, allowing everyone to benefit from the question and answer. Importantly, your identity will not be revealed to other students. Even if you don’t want to ask a question, you can still view existing questions and answers.

Note that the Online Tutor is not designed to replace attendance at lectures or tutorials, but rather to complement them. Also, simple questions that can be answered by referring to the prescribed readings will not usually be answered. You can access the Online Tutor via the Online Tutor link, located in the navigation menu of this subject’s LMS page.

Computing and Software

Students will use the EVViews statistical software package extensively to complete tutorial questions and the assignment. If you are not familiar with EVViews, do not worry. You will get plenty of practice during the tutorials, and your tutor will cover the basics.

The EVViews statistical software is available on the computers in the Faculty’s computer laboratories. (See http://fbe.unimelb.edu.au/students/facilities for information about the labs, including their location and hours of operation). Students can also access EVViews via the
University's Citrix server, but generally students should be on campus when connecting. Connection is possible off campus, but should not be relied upon. Details on how to access the Citrix server are provided below:

http://fbe.unimelb.edu.au/students/services/virtual_lab

To log in to the Citrix server, use your usual university login for email, with the domain being “STUDENT”.

Note that the number of students able to use EViews via the Citrix server at any one time is limited by the University's Virtual Private Network (VPN), which has a fixed number of available ports. Students wishing to complete assignments using EViews on the Citrix server should not expect to gain access every time, particularly during peak use times. Peak times will always include the weekends and evenings before assignments are due. In addition, this subject is not the only one using EViews, so plan well ahead if you wish to use EViews via the Citrix server.

A Student Version of EViews 8 (which is the version we shall be using) is also available for US$40. It can be purchased directly by going to the EViews website (see http://www.eviews.com/EViews8/EViews8Student/evstud8.html). Bear in mind that the student version doesn’t have full functionality for some larger data sets. The full version of EViews 8 can be purchased for US$90 by completing an order form and getting me to sign it (See me for details). It is not expected that students purchase their own copy of EViews.

The EViews software itself includes extensive documentation and help system support. If you ever run into trouble or need more info, simply click on Help in the main EViews menu to access all of the included help resources including a search option. The full set of EViews manuals is included in the form of Portable Document Format (.PDF) files. You may access the PDF files by clicking on Help in the main EViews menu, and selecting Users Guide I (pdf), Users Guide II (pdf), or Command Reference (pdf) from the drop-down menu.

FBE Centre for Excellence in Learning and Teaching

The FBE Centre for Excellence in Learning and Teaching (CELT) provides services and resources to enhance your learning in Business and Economics. It provides a range of support services to students.

If you are having any difficulty in studying for this subject, you can arrange a consultation with a learning skills specialist who can review your current approaches to study and offer advice.

Maximise your academic success by taking part in CELT services that develop:

- Skills in research, referencing and academic writing
- Mastery of different assignment types
- Effective study techniques
• Abilities to learn effectively with your peers

• Transition to the faculty and understanding of academic expectations

The Centre also provides an extensive range of help sheets that can enhance your academic performance in Business and Economics. These are available online or at the Centre.

Visit the CELT site www.fbe.unimelb.edu.au/celt to learn more and get involved. CELT is located on level 5 of the Spot building, 198 Berkeley Street.

Make use of CELT. It is there to help.