ECON10005
Quantitative Methods 1

SUBJECT GUIDE

Semester 2, 2013

Prepared by

Assoc Prof Chris Skeels
  chris.skeels@unimelb.edu.au

Dr Mike Pottenger
  mpotteng@unimelb.edu.au

Department of Economics
Faculty of Economics and Commerce
Welcome to the subject. Our aim is to teach you very practical skills which will be useful in other subjects you will study at the University of Melbourne and also (and especially) in the workplace and to do it in such a way that you have “the edge” on students from other Universities in the job market and in your career path. We think that you will find that the subject is both challenging and interesting.

(On behalf of the QM1 team)

Contents

- Subject outline
  Page 3
- Learning outcomes
  Page 3
- Prerequisites
  Page 4
- Academic staff contact details
  Page 4
- Lectures and tutorials
  Pages 4-6
- Assessment
  Pages 7-9
- Further Assistance
  Pages 9-10
- Alternative Quantitative Requirements for the B.Com.
  Page 10
Subject Outline

Introduction

Welcome to Quantitative Methods 1. This subject covers core concepts which underpin quantitative analysis in economics and commerce. It provides a foundation for second-year quantitative subjects, and prerequisite information for other subjects in a commerce degree. The topics covered are descriptive statistical measures, including location and dispersion and graphical methods; probability, random variables and expected values; sampling; estimation and testing using the normal and $t$-distribution; chi-squared tests of independence; simple regression and correlation; and index numbers. Excel is used to illustrate applications in accounting, economics, finance, management and marketing.

Subject Aims

The subject aims are to teach students the basic quantitative methods used in modern organisations and to provide a foundation for future study in quantitative methods and econometrics.

Students should be able to identify and apply suitable statistical techniques for describing data and making inferences from those data. Also, by studying the basic principles of estimation and hypothesis testing, they will acquire the foundation to study more advanced tools used for investigating relationships between important variables in economics, finance, accounting, marketing and management.

At a broader level, studying this subject will give you an appreciation of the analysis behind research conclusions that are reported in the media and in print, and the ability to critically evaluate those conclusions.

Prescribed References


In subject material, the textbook will often be referred to as “SSK”. Note that:

- the fourth edition is not sufficient, as there were several very important changes between the fourth and fifth editions
- some bookshops have the abridged edition; you need the full version

See the subject's LMS page for a complete list of required readings for each topic.

Learning Outcomes

Subject Objectives and Generic Skills

To view the subject objectives and the generic skills you will develop through successful completion of this subject, please see:
To view the learning goals, generic skills and graduate attributes for your degree, please locate the entry for your degree at in the University Handbook:
http://handbook.unimelb.edu.au/

Prerequisites

VCE Mathematical Methods (or equivalent). It is assumed that students have learned concepts of algebra, differential calculus, probability and probability distributions.

Academic Staff Contact Details

Please check the subject’s LMS page for consultation times and for tutor contact details.

Administrative Coordinator Contact Details

Dr Mike Pottenger, mpotteng@unimelb.edu.au, Room 347, FBE Building

Lecturer Contact Details

Dr Mike Pottenger, mpotteng@unimelb.edu.au, Room 347, FBE Building
Associate Professor Chris Skeels, chris.skeels@unimelb.edu.au, Room 327, FBE Building

Email Protocol

Please note that we 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 we 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/.

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, we encourage students to attend all lectures and tutorials and to familiarise themselves with the consultation hours offered by the lecturers and tutors in this subject.

Lectures and Tutorials

Lecture Times

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Lecture theatre</th>
<th>Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday</td>
<td>10:00am-11:00am</td>
<td>To be announced</td>
<td>To be announced</td>
</tr>
<tr>
<td>Thursday</td>
<td>10:00am-11:00am</td>
<td>Basement Theatre</td>
<td>The Spot</td>
</tr>
</tbody>
</table>
Lecture Participation Requirements

You are expected to have completed the required reading for each topic before attending the lecture. See the subject's LMS page for a list of required reading.

Lecture Schedule

See the subject's LMS page for a list of required reading for each topic.

<table>
<thead>
<tr>
<th>Week</th>
<th>Subject Section</th>
<th>Topic</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sampling and descriptive statistics</td>
<td>Sampling, presenting, and spotting swindling with statistics</td>
<td>Sampling, types of data and using Excel</td>
</tr>
<tr>
<td>2</td>
<td>Probability</td>
<td>What do skydiving and stock prices have in common?</td>
<td>Measures of location, variation and association</td>
</tr>
<tr>
<td>3</td>
<td>Probability</td>
<td>Luck of the draw? Passengers, portfolios, &amp; miscarriages of justice.</td>
<td>Probability and discrete distributions</td>
</tr>
<tr>
<td>4</td>
<td>Probability</td>
<td>Are we really fooled by randomness?</td>
<td>The normal and standard normal distributions</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Cheating fate and turning lead into gold</td>
<td>Sampling distributions of the mean and proportion</td>
</tr>
<tr>
<td>6</td>
<td>Inference</td>
<td>Why does one of Australia's foremost political commentators refuse to use political polls?</td>
<td>Confidence interval estimation for the mean and proportion</td>
</tr>
<tr>
<td>7</td>
<td>Inference</td>
<td>What's got people so concerned about the pharmaceutical industry?</td>
<td>One and two-tail hypothesis tests for the mean and proportion</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Why do people cheat?</td>
<td>Two sample confidence interval estimation and hypothesis tests</td>
</tr>
<tr>
<td>9</td>
<td>Regression Analysis</td>
<td>CBA stock volatility compared to the market, and Australian household consumption</td>
<td>Simple linear regression analysis</td>
</tr>
<tr>
<td>10</td>
<td>Regression Analysis (continued)</td>
<td>Price elasticity, practice making perfect, and the War on Drugs</td>
<td>Inference, prediction and application with regression equations</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>National economic growth and information asymmetry in illegal markets</td>
<td>Multiple regression analysis</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Review</td>
<td></td>
</tr>
</tbody>
</table>
Lecture Slides and Topics

The lecture slides used during lectures will be available for download from the subject's LMS page prior to each lecture.

Tutorial Times

Tutorials commence in Week 2, and each tutorial covers the content from lectures in the previous week. Please refer to the LMS for a complete list of tutorial times and venues.

Tutorial Participation Requirements

The most effective way to learn in this subject, and to get a good grade, is to work consistently and conscientiously throughout the semester. Tutorials and the prescribed homework related to them are designed to help you do this. It is particularly important to keep up with the tutorial work in this subject because, after the first few weeks, the content continues to build on early, relatively simple ideas to move quickly into quite complex theories and applications.

Each week, you will be provided with required readings that you are expected to complete before attending lectures, and with preparation questions that you are expected to complete after attending the lecture and before attending your tutorial. The work you do in tutorials assumes and requires that you have completed these readings and the corresponding preparation. You should bring a calculator to tutorials.

Suggested solutions to tutorial questions will be placed on the LMS page after all tutorials for that week have been held.

Using Lecture Capture (Echo 360)

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 end of semester exam.

You can access recorded lectures by clicking on the Lecture Recordings (or similar) menu item in the LMS page for this subject.

To listen to lecture recordings, you must install QuickTime 7 (or a later version) on your computer.

Please note that lecture recordings are not a substitute for attendance; rather they’re designed for revision. On rare occasions the lecture capture system can fail to record the lecture due to technical reasons. In such cases, the lecture recording will not be made available.
Assessment

Assessment Overview

Your assessment for this subject comprises the following:

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Individual or Group</th>
<th>Due</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>Individual/group</td>
<td>August 15 2013</td>
<td>10%</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>Individual/group</td>
<td>September 19 2013</td>
<td>10%</td>
</tr>
<tr>
<td>Assignment 3</td>
<td>Individual/group</td>
<td>October 17 2013</td>
<td>10%</td>
</tr>
<tr>
<td>End-of-semester exam</td>
<td>Individual/group</td>
<td>Assessment period</td>
<td>70%</td>
</tr>
</tbody>
</table>

Assignments (10% each)

You are encouraged to work on the assignments in groups of up to but no more than four students and to submit a single electronic copy as a group. All members of a group submitting a single assignment must belong to the same tutorial and all members of the group will be given the same mark. Students may choose to work and hand in an assignment on their own if they wish.

It is possible that due dates for one or more of the assignments will also be due dates for work in another subject or subjects. Be mindful of this. The assignment questions will be made available 14 days in advance of the due date.

Assignments are to be submitted electronically via the Assignment Tool online (not via email).

Submissions should be in .pdf format, and must have the name and student number of all students (if working in a group) on the first page.

Solutions to each assignment will be made available on the LMS the day after they are due to provide students with feedback as soon as possible.

Late Submission of Assignments

Late assignments will not be marked. Students with a genuine and acceptable reason for not completing an assignment, such as illness, can apply to the subject’s Administrative Coordinator, Mike Pottenger (mpotteng@unimelb.edu.au), to have their marks for that task transferred to the final exam. Suitable evidence, such as a doctor’s certificate is required. Applications made more than 3 days after the assignment is due will not be considered. Tutors do not have the authority to accept late submissions.

Using the Assignment Tool

The Assignment Tool allows you to submit your assignment to your lecturer online from home or from any of the student labs on campus.

During the course of the semester, you’ll be asked to submit three assignments in electronic format into the Assignment Tool. You can access the Assignment Tool by clicking on Assignment Tool in the navigation menu from 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 assignments in hardcopy format. The guide can be downloaded here:  
Please note that you are required to keep a copy of your assignment after it has been submitted, as you must be able to produce a copy of your assignment at the request of your tutor or lecturer at any time after the submission due date.

**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.


**Final Exam (70%)**

The final exam accounts for 70 marks. Failure to achieve a mark of at least 35/70 on this exam will mean that the maximum attainable mark you can receive for the subject will be a pass mark of 50 with a grade of P.

Exam questions will be based on or similar to those in tutorials (both preparation and tutorial questions) and the assignments. You should regard all tutorial and assignment questions as practice exam questions.

All topics are examinable and there will be little covered in tutorials and assignments which will not be examined.

You will not be examined on what formulas or commands to use in Excel – but you may be examined on the interpretation of output generated in Excel.

**Calculators**

You will need a calculator for the final exam. It is strongly recommended that you use the calculator you intend to use in the final exam throughout the semester.

**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 website for more information:
http://fbe.unimelb.edu.au/csc/assistance/special_consideration

The examination period for this semester is Monday 4 November to Friday 22 November.

**Referencing**

All sources used for a written piece of assessment must be referenced. This is to acknowledge that your material is not based entirely on your own ideas, but is based, in part, on the ideas, information, and evidence of others. This is desirable as you are attending University in order to learn from others.

You will be required to use the APA system or Harvard System of referencing. The FBE Centre for Excellence in Learning and Teaching (CELT) has prepared a booklet for each system specifically to assist students to reference correctly. Each booklet contains many examples that will help you when preparing your assignments. The booklets can be found at the following locations:


It is important that all material you present for assessment is referenced correctly. Material that has not been referenced correctly may be considered to be plagiarised, and as such may be penalised. We will also look for evidence that material included in the bibliography has been used in the assignment. Including references that have not been used may also result in your assignment being penalised.

**Further Assistance**

If you need assistance during the semester, you have several options:

**Online Tutor**

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

To ensure that all students have a fair and equal opportunity to have their questions answered, questions relating to assessment (e.g. assignments and the final exam) submitted less than 24 hours before the assessment deadline will not be answered.

Your questions and the answers can (usually) 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. Notice that this means, that 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 tutorials or your own reading and preparation, but rather to complement these. Simple questions that can be answered by referring to the prescribed readings will not usually be answered.

**Tutor Consultations**
All tutors will have a consultation hour available each week beginning in Week 2 of semester. Details will be placed on the LMS when they are available.

The Administrative Coordinator

For problems with general administration of the subject and with tutorials in particular, you should consult the subject’s Administrative Coordinator, Dr Mike Pottenger (contact details are on page 2 above).

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.

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 helpsheets that can enhance your academic performance in Business and Economics. These are available or online or at the Centre.

Visit the CELT site www.fbe.unimelb.edu.au/celt to learn more and get involved.

Alternative Quantitative Requirements for the B.Com.

There is an alternative set of subjects for satisfying the quantitative requirement for your commerce degree, which involve studying maths as your breadth component. See the details in the 'Subject Information' section of the subject's LMS page for more details.