ECON5257
INTRODUCTORY STATISTICS AND DATA ANALYSIS

Course Outline
Semester 1, 2015

Part A: Course-Specific Information

Students are also expected to have read and be familiar with Part B Supplement to All Postgraduate Course Outlines. This contains Policies on Student Responsibilities and Support, Including Special Consideration, Plagiarism and Key Dates. It also contains the BUSINESS SCHOOL PROGRAM LEARNING GOALS.
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1 STAFF CONTACT DETAILS

Lecturer-in-charge: Chris Carter
Office: Room 404, School of Economics
Telephone Number: 02 9385 9696
Email: chris.carter@unsw.edu.au
Consultation Times: Wednesday from 2pm to 5pm or by appointment

A full list of tutors will be posted on the Course Website.

1.1 Communication with Staff

The Lecturer-in-charge is responsible for the overall direction and content of the course. You should feel free to contact your lecturer about any academic matter. However, it is strongly encouraged, for efficiency purposes, that all enquiries about the subject material should be made at lectures or tutorials or during consultation times.

Email correspondence on administrative matters (e.g. advising inability to attend tutorial) will receive a reply within 24 hours (excluding weekends).

2 COURSE DETAILS

2.1 Teaching Times and Locations

2.1.1 Class Hours

This is a half-semester course. There is a 2-hour lecture per week, which runs from 30 April, 2015 to 4 June, 2015, and a 1-hour tutorial per week, which runs from 7 May, 2015 to 4 June, 2015.

2.1.2 Lecture and Tutorial Times and Location

Lectures
Section A Thursday 18:00-20:00 Law Theatre G02
Section B Thursday 12:00-14:00 Colombo Theatre B

Tutorials
There will not be any tutorial classes in the first week of lectures. The first tutorial classes will be held as from Thursday 7 May, 2015 and the last tutorial classes will be held on 4 June, 2015. Locations and times for tutorials can be found by using the following link: http://www.timetable.unsw.edu.au/current/ECON5257.html.

2.2 Units of Credit
This is a 3 unit credit course. There are two sections for this class.
2.3 Summary of Course

Topics covered include: understanding data, probability and probability distributions, sampling distributions, statistical inference, correlation and regression analysis. The course also aims to provide familiarity with the use of Excel spreadsheet software for statistical data analysis and problem solving.

2.4 Course Aims and Relationships to Other Courses

The aim of this course is to provide students with an introduction to basic statistical tools and quantitative methods that are useful in understanding the type of data encountered in business. Importantly, it will provide a framework for approaching business and economic problems, and experience in learning from associated data.

2.5 Student Learning Outcomes

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 UNSW 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 School Postgraduate coursework 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 the concepts, theories and techniques of statistical analysis. Use statistical skills to present data and apply all relevant statistical tools to business and economic problems.</td>
<td>• Weekly Assignments • Main Assignment • Final Exam</td>
</tr>
<tr>
<td>2 Critical thinking and problem solving</td>
<td>Use the standard statistical techniques to interpret and analyse real problems encountered in the world of business.</td>
<td>• Weekly Assignments • Main Assignment • Final Exam</td>
</tr>
</tbody>
</table>
3 LEARNING AND TEACHING ACTIVITIES

3.1 Approach to Learning and Teaching in the Course

The philosophy underpinning this course and its Teaching and Learning Strategies are based on “Guidelines on Learning that Inform Teaching at UNSW“. These guidelines may be viewed at: www.guidelinesonlearning.unsw.edu.au. Specifically, the lectures, tutorials and assessment have been designed to appropriately challenge students and support the achievement of the desired learning outcomes. A climate of inquiry and dialogue is encouraged 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 their learning outcomes.

3.2 Learning Activities and Teaching Strategies

The examinable content of the course is defined by the content of lectures, the corresponding textbook references given in the lectures, and the content of the tutorial program.

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; to provide relevant real life examples to which the concepts and methods can be applied, and to revisit topic according to student feedback.

Tutorials

The purpose of tutorial meetings is to enable students to obtain feedback on their assignments and raise questions about difficulties encountered in their studies. Students should not expect another lecture, but must come prepared with questions and contributions of their own. To facilitate this, a set of exercises is assigned each week. It is fundamental that students attempt all the questions every week. The students will be required to hand in part of the assignment exercises for marking according to a suitable workload.
Students are encouraged to collaborate on tutorial exercises. The students can submit the solutions to the marked exercises in pairs.

The tutorial exercises will give a good indication of the kind of questions that can be expected in the final examinations.

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. Active learning is fundamental for this course.

An “ideal” strategy (on which the provision of the course materials is based) might include:

1. Reading of the relevant chapter(s) of the text and any readings. This will give you a general idea of the topic area.
2. Attendance at lectures. Here the context of the topic in the course and the important elements of the topic are identified. The relevance of the topic should be explained.
3. Attempting all the tutorial questions before going to class.
4. Making use of the feedback available to you at the tutorials and consultation times.

Computing

During this course, students will use the spreadsheet program EXCEL to solve statistical problems on topics discussed in lectures. EXCEL output will be discussed in tutorials and lectures and will be required in order to complete the assignment. Computing is an integral component of this course and you are expected to become proficient in EXCEL.
4 ASSESSMENT

4.1 Formal Requirements

In order to pass this course, you must achieve a composite mark of at least 50 percent. That is, the sum total of all assessments must reach at least 50 marks out of a possible 100 marks to pass the course.

4.2 Assessment Details

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Marks</th>
<th>Length</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly exercises</td>
<td>20</td>
<td></td>
<td>By the beginning of each tutorial.</td>
</tr>
<tr>
<td>Main Assignment</td>
<td>25</td>
<td></td>
<td>Thursday 4 June, 2015</td>
</tr>
<tr>
<td>Final Exam</td>
<td>55</td>
<td>Two hours</td>
<td>Thursday 11 June, 2015</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3 Weekly exercises

The students will be required to hand in solutions to a selection of exercises at the beginning of each tutorial session, some of which will be marked. The tutorial questions will be posted on Moodle the day after each lecture. The students can submit their solutions in pairs. If this is the case the two students need to be from the same tutorial section.

4.4 Main Assignment

The main assignment must be printed in MSWORD or PDF format and handed in to your tutor by 4 June. Due to the short nature of the course, the main assignment will require knowledge of topics up to Lecture 4. Please take this into account when designing your study and work schedule.

The main assignment can be done in groups of up to three students. The groups can combine students from any lecture and tutorial sections. We can also accept individual assignments.

Relevant computer output can be attached at the back of the assignment. Email submission is unacceptable. Late submission will not be marked. All assignments must include the Assignment Cover Sheet as their first page. This can be downloaded from the course web site.
4.5 Final Exam

The final exam of the course has been scheduled on **Thursday 11 June 2015 from 2pm to 4pm in Law Theatre G04.**

The final exam will contain short and long written questions focusing on statistical concepts, interpretation and application of statistical techniques. The students will be allowed to bring a front and reverse A4 **handwritten** cheat sheet. The students will also be allowed to bring approved calculators. It is recommended that the students familiarise themselves with the use of the relevant functions in their calculators prior to the exam.

Practice exam questions will be uploaded on the course website. Students should note that, given changes in the course content and staff, past exam papers for this subject may be misleading. **All material covered in the lectures and tutorial program is examinable.**

4.6 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 and will not be related to course grades.

5 COURSE EVALUATION AND DEVELOPMENT

Each year, we seek feedback from students and other stakeholders about the courses we offer in the School of Economics. In this course we evaluate and use your course-level feedback, both quantitative and qualitative, to guide our continued review and redesigning of the course.

Our teaching team reflects on a range of feedback sources over time. This continuous improvement process can affect one or more particular areas of the course, whether this has to do with structure, content, resources, delivery or assessment. Thus, the ECON 5257 course you are doing this Session reflects changes we have made in responses to feedback from students and the teaching team last year. The UNSW Course and Teaching Evaluation and Improvement (CATEI) Process is one of the ways in which we gather student evaluative feedback. As in this case, we communicate significant changes within the course to subsequent cohorts of students.

6 COURSE RESOURCES

The website for this course is on UNSW Moodle at: **http://moodle.telt.unsw.edu.au**

The textbook for this course is:


Finally, weekly lecture notes will be posted on the course web site prior to each lecture.
## 7 COURSE SCHEDULE

### 7.1 Lecture Schedule

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<thead>
<tr>
<th>Lecture</th>
<th>Topic</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture 1</td>
<td><strong>Course Introduction and Descriptive Statistics</strong></td>
<td>Keller 1.1 - 1.4; 2.1 – 2.2; 3.1; 4.1 – 4.3; Chapter 5</td>
</tr>
<tr>
<td></td>
<td>Data Collection and Sampling: A Word of Caution.</td>
<td></td>
</tr>
<tr>
<td>Lecture 2</td>
<td><strong>Probability Theory and Probability Distributions</strong></td>
<td>Keller 6.1 – 6.4; 7.1– 7.2; 7.4– 7.5; 8.1 – 8.2;</td>
</tr>
<tr>
<td>Lecture 3</td>
<td><strong>Statistical Inference I: Sampling Distributions and Estimation</strong></td>
<td>Keller 9.1; 10.1 – 10.3;</td>
</tr>
<tr>
<td>14 May</td>
<td>Sampling distribution of the sample mean. Estimators and their properties. Interval Estimation of the Population Mean.</td>
<td></td>
</tr>
<tr>
<td>Lecture 4</td>
<td><strong>Statistical Inference II: Hypothesis Testing</strong></td>
<td>Keller 11.1 - 11.4; 8.4, p.291 – 296; 12.1;</td>
</tr>
<tr>
<td>Lecture 5</td>
<td><strong>Correlation and Regression Analysis I</strong></td>
<td>Keller 2.3; 3.3; 4.4; 16.1 – 16.4;</td>
</tr>
<tr>
<td>28 May</td>
<td>Describing relationships between two variables. Covariance and correlation. An introduction to regression. The Simple Linear Regression Model(SLRM). Statistical Inference for the SLRM.</td>
<td></td>
</tr>
<tr>
<td>Lecture 6</td>
<td><strong>Correlation and Regression Analysis II</strong></td>
<td>Keller 16.5</td>
</tr>
<tr>
<td>4 June</td>
<td>Using the SLRM for Prediction Purposes. Further examples and discussions of the SLRM.</td>
<td></td>
</tr>
</tbody>
</table>
## 7.2 Tutorial Schedule

<table>
<thead>
<tr>
<th>DATE</th>
<th>Topic</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 May</td>
<td>Tutorial 1 Exercises</td>
<td>Lecture 1 Material</td>
</tr>
<tr>
<td>14 May</td>
<td>Tutorial 2 Exercises</td>
<td>Lecture 2 Material</td>
</tr>
<tr>
<td>21 May</td>
<td>Tutorial 3 Exercises</td>
<td>Lecture 3 Material</td>
</tr>
<tr>
<td>28 May</td>
<td>Tutorial 4 Exercises</td>
<td>Lecture 4 Material</td>
</tr>
<tr>
<td>4 June</td>
<td>Tutorial 5 Exercises</td>
<td>Lecture 5 Material</td>
</tr>
</tbody>
</table>