UNSW Business School

School of Economics

ECON1203

BUSINESS AND ECONOMIC STATISTICS

Course Outline

Semester 1, 2017

Part A: Course-Specific Information

Please consult Part B for key information on Business School policies (including those on plagiarism and special consideration), student responsibilities and student support services.

Table of Contents

1 STAFF CONTACT DETAILS

Lecturer-in-charge:
Dr Jonathan Lim
Room: UNSW Business School 409
Phone No: 9385 0121
Email: j.k.lim@unsw.edu.au
Consultation Times: TBC

Other lecturers:

Mr Gautam Gangopadhyay
Room: UNSW Business School 408
Phone No: 9385 9774
Email: g.gangopadhyay@unsw.edu.au
Consultation Times: TBC

Tutor-in-charge:
Lee Lee Ooi
Room: UNSW Business School 463
Phone No: 9385 3565
Email: l.l.ooi@unsw.edu.au
Consultation Times: TBC

A full list of tutors, tutorial times and locations will be posted on the course website.

1.1 Communications with Staff

You should feel free to contact your lecturer(s) about any academic matter. However, where possible, all enquiries about the subject material should be made at lectures or tutorials, or during consultation times. Discussion of course subject material will not be entered into via lengthy emails.

Any questions regarding administrative matters (e.g., tutorial allocations) should be directed to the tutor-in-charge, Lee Lee Ooi.

You should expect responses to email correspondence within 48 hours, but not over weekends. Before communicating with staff, please check relevant components of this course outline as this will provide answers to most common questions. You should also regularly check the course website for announcements and reminders about upcoming events and deadlines.

1.2 Peer Assistance Support Scheme (PASS) and Exam-Period Pitstop

PASS is a scheme introduced in the Business School to help undergraduates make the transition from secondary school to first year at University. The scheme consists of study groups run by second and third year students which students enrolled in this course are able to join on a voluntary basis. Many students have found PASS helpful as it provides both extra problems for practice and advice from experienced students. It also provides an

informal atmosphere with the opportunity to ask any questions that students may be hesitant to ask staff.

All PASS classes will run for one hour each week, commencing in Week 3. More information, including the times and locations of PASS groups, will appear on the course website and in Week 2 lectures.

In the weeks leading up to final exams, starting from week 14, the School will be providing Pitstop, an opportunity for consultation with tutors as you revise for the exam. Details of Pitstop times and locations for this course will be advised closer to the time.

2 COURSE DETAILS

2.1 Teaching Times and Locations

Each student enrolled in this course is required to register for a lecture stream via the NSS system, accessed through the myUNSW portal. Each enrolled student is also required to register for a stream of 12 weekly one-hour tutorials. Tutorials start in Week 2 and run every week through Week 13. A full list of tutorials and tutors will be posted on the course website.

Once you have enrolled, moving from one tutorial group to another will not be permitted unless you have compelling reasons. You should consult the tutor-in-charge about these matters.

There are four lecture streams. All streams cover the same material, but you should attend the stream you have been assigned. The streams are:

	Lecturer	**Day/Time/Location**
Stream A	*Dr Jonathan Lim*	Thursdays 2-4pm Physics Theatre
Stream B	*Dr Jonathan Lim*	Wednesday 4-6pm Physics Theatre
Stream C	*Mr Gautam Gangopadhyay*	Tuesday 4-6pm Rex Vowels Theatre
Stream D	*TBC*	Thursday 6-8pm Rex Vowels Theatre

2.2 Units of Credit

This course is worth 6 units of credit.

2.3 Summary of Course

This course introduces students to basic statistical concepts and methods that are widely used in economics, finance, accountancy, marketing, and business more generally. Emphasis is placed on applying statistical methods to draw inferences from sample data in order to inform decision-making. Course topics include: descriptive statistics, probability distributions, point and interval estimation of parameters, hypothesis testing, and regression models. Students will learn to solve statistical problems in an Excel spreadsheet environment. This course provides a basis for further study of statistical and econometric methods.

2.4 Aims and Relationship to Other Courses

ECON 1203 Business and Economic Statistics is offered as part of the first year core in the BCom and BEc degrees within the UNSW Business School. It aims to give you the basic skills and knowledge for data analysis that will be used in further study in all other disciplines in the Business School. In particular, ECON 1203 is a prerequisite for all higher-level courses in econometrics and business statistics offered by the School of Economics. These courses are designed to equip students with more advanced statistical and other quantitative skills that are in demand by employers in the public and private sectors.

2.5 Presumed Knowledge

ECON 1203 takes seriously the Business School's assumed knowledge requirement that all students entering the BCom and BEc degrees are familiar with the material covered in HSC Mathematics and Mathematics Extension 1, which includes: basic functions, including logarithmic and exponential; using graphs to represent and analyse functions; solving equations; basic probability; and elementary differentiation and integration. If you have not studied one or more of these topics previously, then remedial work will be necessary. This material will not be revised as part of the ECON 1203 lectures or tutorials.

A Maths Skills Test has been designed to evaluate the adequacy of your basic quantitative skills for this course. This test is available on the course website and all students must attempt the test in order to get full access to the site. Students with the appropriate background will find the test straightforward. If this is not the case for you, and your results make you feel that you require some assistance, then there are at least two options. (1) You may wish to engage in some self-directed study, in which case we recommend you purchase the following book available at the UNSW bookshop: *Managing Mathematics: A Refresher Course for Economics and Commerce Students*, by Judith Watson, 2nd edition, 2002. (2) UNSW in conjunction with Randwick TAFE is offering a course, *Essential Mathematics for Higher Education*, that provides instruction in the mathematical tools required for this course. For further details, go to http://sydneytafe.edu.au/newsevents/events/essential-mathematics-higher-education.

2.6 Student Learning Outcomes

The Learning Outcomes for this course describe what you should be able to do by the end of the semester if you participate fully in all learning activities and successfully complete all assessment items. These Learning Outcomes also relate to some of the overall Program Learning Goals for all undergraduate coursework students in the UNSW Business School.

Program Learning Goals describe what the Business School wants you to be or to have by the time you successfully complete your degree.

For more information on the Undergraduate Program Learning Goals, see Part B of the course outline.

The following table shows how the Learning Outcomes for this course relate to the Business School's Program Learning Goals, and indicates where in the course the Learning Outcomes are assessed.

Program Learning Goals		**Course Learning Outcomes**	**Course Assessment Item**
This course helps you to achieve the following learning goals:		*On successful completion of the course, you should be able to:*	*This learning outcome will be assessed in the following items:*
1	Knowledge	Explain basic statistical methods and know when to apply appropriate methods in practical scenarios. Employ statistical tools and skills to interpret characteristics of data relevant to problems in economics and business. Independently use Excel's graphical and statistical capabilities.	• Project • Online quizzes • Tutorial quizzes • Final exam
2	Critical thinking and problem solving	Formulate and solve real problems amenable to statistical analysis using data that arise in economics and business, using methods appropriate to the problem and data available.	• Project • Online quizzes • Tutorial quizzes • Final exam
3a	Written communication	Construct written work which is logically and professionally presented. Convey statistical ideas and results so that non-experts can understand the key outcomes of analysis.	• Project • Tutorial quizzes • Final exam
3b	Oral communication	Articulate statistical concepts and interpretations.	• Not specifically assessed in this course

4	Teamwork	Work collaboratively to complete a task.	• Not specifically assessed in this course
5a.	Ethical, environmental and sustainability considerations	Identify and assess environmental and/or health considerations when they arise in problems in economics and business. Explain and demonstrate the ethical responsibilities associated with reporting statistical results.	• Project • Online quizzes • Tutorial quizzes • Final exam
5b.	Social and cultural awareness	Formulate economic and business interactions in analytical terms and analyse them using tools provided by the theory.	• Project

3 LEARNING AND TEACHING ACTIVITIES

3.1 Learning Activities and Teaching Strategies

The examinable content of the course is defined by the textbook references given in the Lecture Schedule, the content of lectures, and the content of the tutorial materials. Additional content is provided to enhance, contextualise, and ease your learning.

Lectures

The purpose of lectures is to provide a logical structure for the topics that make up the course; to emphasize and explain the important concepts and methods in each topic; and to provide initial examples to which the concepts and methods are applied.

Tutorials

Tutorials are an integral part of the course. Tutorial activities, including discussions and quizzes, build on the material discussed in lectures and are designed to help you deepen your understanding and practice working with the material.

Out-of-Class Study

A significant amount of your learning is expected to be achieved outside of class time. Lectures can only provide a structure to assist your study, and tutorial time is limited. Both the course website and the MyStatLab online learning environment, accessible from the course website, offer an array of diverse materials to assist in your out-of-class study and revision.

Throughout the semester you are expected to complete weekly online homework tasks, which will be listed weekly on the course website. Some of these tasks will involve completing activities or problems in MyStatLab, and some will involve supplementary reading or other activities. During the semester you must also complete six fortnightly online quizzes, which are assigned every other week and accessible via MyStatLab starting on Wednesday of the week prior to due date of the quiz. You are allowed two attempts at each fortnightly quiz.

A good study strategy for getting on top of each fortnight's worth of material is as follows:

- Read the relevant chapter(s) of the text each week before the lecture. This will give you a general idea of the topics covered.

- Attend lecture. Here the context of that week's topics in the course, their relevance, and the important elements of the topics are identified and explained.
- Complete the online homework tasks each week after lecture.
- After completing the above activities, and before attending the week's tutorial, attempt the tutorial questions and make your first attempt at the MyStatLab fortnightly online quiz. This will help you identify issues that you can discuss and clarify in the tutorial class.
- Attend your tutorial. Here you will be tested on your understanding of the assigned tutorial problems and will engage in interactive discussion and problem-solving using the material from the previous week's lecture.
- Make your second attempt at the MyStatLab fortnightly online quiz.

3.2 Computing

During this course, students will use the popular spreadsheet program Microsoft Excel to solve statistical problems. Excel output will be discussed in tutorials and lectures, and will be submitted as part of the course project (see below under Assessment). Computing is an integral component of ECON 1203, and you are expected to become proficient in Excel by the end of this course.

The Homework in some weeks will include reviewing instructions on the use of Excel, and there are more support materials for using Excel available in the textbook and through MyStatLab. You should work through these materials at your own pace on your own computer, or at a university computing lab. A list of lab times allocated to students in School of Economics subjects (including ECON 1203) will be available on the course website. These times are not tutorials, and tutors will not be available during these designated lab times. However, you may direct Excel questions to your tutor.

4 ASSESSMENT

4.1 Formal Requirements

In order to pass this course, you must achieve a composite mark of at least 50 out of 100.

4.2 Assessment Details

Assessment Task	Weighting	Length	Due Date
Fortnightly online quizzes in MyStatLab	15% in total	Approximately 1 hour each	Weeks 3, 5, 7, 9, 11, and 13
Project	20%	8 pages maximum	Week 11
Tutorial quizzes (three randomly selected out of five)	15%	various	Five random weeks, in tutorials
Final Exam	50%	2 hours	Exam period

There is no requirement to pass each component of assessment in order to pass the course, but achievement of a satisfactory attempt (including scoring at least 40%) on each completed component **is a prerequisite** for any special consideration request to be considered.

4.3 Assessable tutorial work: Tutorial quizzes

One assessment item will be based on work you complete in person while attending tutorials. Five **randomly selected** tutorials except the first one will begin with a short closed-book quiz in which you will be asked to produce written, individual answers to questions based heavily on one of the tutorial questions assigned for that tutorial. These quizzes are compulsory and are intended to motivate you to thoroughly revise the tutorial problems that are assigned each week. You will complete a total of **five** in tutorial quizzes but only **three** of these quizzes, randomly selected at the end of the semester, will be marked and count towards your final course mark. **There are no supplementary quizzes under any circumstances.**

A record of attendance at tutorials will be kept**. 80% attendance is required by UNSW and Business School rules.** Regular attendance is a pre-requisite for any special consideration request to be considered. Regular active participation in tutorials is expected, as well as being required for earning marks on the assessable tutorial work described above.

Students must sign on as in attendance within the first 10 minutes of each tutorial. Signing on for another student will be treated as misconduct. If, owing to illness or other exceptional circumstances, you are unable to attend your usual tutorial, you may try to attend another tutorial in the same week. However, you are required to attend your usual tutorial at least 10 times during the session. This allows for occasional absence due to illness or other reasons, and hence special consideration applications will not reduce this requirement.

4.4 Fortnightly Quizzes

Six online fortnightly quizzes will be assigned throughout the semester (in weeks 3, 5, 7, 9, 11, and 13) in MyStatLab. These quizzes will consist of a set of questions which will be randomly generated when you log on. **Each quiz will be available starting on the Wednesday afternoon before the assigned week, and will be closed on 5 PM on Sunday at the end of the assigned week.** You may log on and attempt the quiz at your convenience. There is a time limit of one hour, but a well-prepared student should take considerably less time to complete each quiz. You will be permitted to have a second attempt at each quiz, although the exact questions you face on the second attempt may be different. If you do make a second attempt, then your highest mark out of the two attempts will be recorded. The 15% assessment allocated to the quiz mark will be scored as the total of your best five quiz marks (3% each), meaning that your worst quiz mark will be dropped.

Each quiz will cover lecture and textbook material from the two preceding weeks. The purpose of the quizzes is to test your facility with the course material in a frequent, methodical fashion, and to ensure that you are well-prepared for tutorial work and for the

multiple-choice section of the final exam. You should use your performance on the quizzes to identify weaknesses in your understanding and to undertake remedial action in preparation for the final exam.

You are encouraged to attempt each quiz as soon as it is made available, before your tutorial. Do not leave it until the last minute to begin your first quiz attempt. **There are no supplementary quizzes under any circumstances.** You are given two attempts partly to cover for any unseen technical problems that may cause you to lose an attempt. You may contact the lecturer-in-charge if and only if you lose both attempts due to technical problems encountered before 5 PM on Friday of the assigned week.

4.5 Project

The project is a pairwise assessment that requires you and your partner in the same tutorial class to use statistical tools to solve a specific problem. You will be supplied with background information, data and the key objectives of the task. The full assessment instructions for the project will be distributed in week 5.

The purpose of the project is to test your knowledge of statistical concepts and your ability to apply statistical reasoning in solving a realistic problem. It will also test your ability to present a coherent written report based on statistical analysis. In order to successfully complete the project, you will need to be proficient in Excel. You are strongly urged to work through the Homework tasks each week in order to help build your skills in this area.

4.5.1 Submission Procedure for Project

A hard copy of your project must be handed in to your tutor at the start of your normal tutorial time in Week 11 (the week starting Monday 15 May 2017). Do not use plastic sheets or binders. Simply attach the completed cover sheet that will be provided, and staple the pages together. **Check that your names and student IDs have been completed on the cover page.**

In addition to the hard copy of the project, **you must also submit an electronic copy** to the course website by 6pm on Friday 19 May 2017. Instructions will be available on the course website. Browse and upload a copy of your document - do not paste text. Use both your student IDs in the file name (e.g., z1234567&z2345678.doc). **Note: your hard copy and your electronic copy must be identical, and you will not be eligible for credit until they have both been handed in.**

The project is **a pairwise assignment**. All electronic copies of projects will be checked for plagiarism using the Turnitin software into which they are uploaded. See notes on Plagiarism in Part B of the course outline for further information. The Turnitin software will automatically check against all other assignments submitted this year and in previous years.

4.5.2 Late Submission of Project

Your project will be considered late if it is handed in after the start time of your normal tutorial in Week 11. 20% of the value of the project will be deducted for each day (24 hours) or part thereof that the project is late, including weekend days. For example, if your tutorial runs from 10 to 11am on Wednesdays, then your project must be in your tutor's hand by 10 AM on Wednesday of Week 11 in order to be considered on time. Projects submitted more than five days late (including weekend days) will not be marked and will be assigned a mark of zero.

If you do not hand in your project at the start of your normal tutorial in Week 11, it remains your responsibility to hand the late project in to your tutor. Staff members other than your tutor will not accept your project. Employment obligations or holiday plans of any kind are not acceptable reasons for late submission of an assignment.

4.6 Final Exam Format

The final exam will cover the entire course. All material covered in lectures and the tutorial program is examinable. The format will be posted later in the semester. This semester's final exam will also feature some multiple-choice questions, some of which will be similar to questions you will encounter on MyStatLab.

Some guidance towards the type of short-answer questions you will find on the final exam can also be obtained from previous ECON1203) examination papers. This can be found in the archive of the library website.

4.7 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 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 myExperience Survey Tool is one of the ways in which student evaluative feedback is gathered. You are strongly encouraged to take part in the feedback process.

6 COURSE RESOURCES

The website for this course is on UNSW Moodle at:

http://moodle.telt.unsw.edu.au

You will also find that you have been "enrolled" automatically in the Moodle website called Figuring It Out (Maths/Stats). This site contains a number of specially selected online resources for you to explore to increase your understanding of topics in ECON 1203 and some additional related areas. Last year many students made use of the statistics glossary to help them understand terminology, the "Lighting Up Statistics" cartoon videos, and many other resources which have been collected in different maths and statistics categories. Some of these resources will be assigned in your Homework tasks each week.

The required textbook for this course is:

> **Sharpe, DeVeaux and Velleman (2015), *Business Statistics*, 3rd Global Edition, Pearson (ISBN 978-1-292-05869-6).**

This is a softcover grey-and-red coloured textbook, and is available for purchase in the UNSW bookshop OR online *http://www.pearson.com.au/9781292058696*. Alternatively, an electronic copy is available from the publisher: *http://www.pearson.com.au/9781292058719*

Do not buy the "textbook bundle" that includes an access code to MyStatLab, as it will be more expensive than the standalone textbook and your enrolment in this course comes complete with MyStatLab access already. Copies of the textbook will be placed in the library's High Use Collection (HUC). The publishers provide a range of excellent support material aligned with the textbook, which you can find by following the link to MyStatLab on the course website. A selection of this material will be suggested in the online homework activities each week, but there is much more to explore, including interactive applets, pre- and post-chapter tests, narrated videos, practice questions, and so on.

Students may find themselves able to acquire previous (3rd non-global or 2nd) editions of the textbook. These will cover the material of ECON 1203 quite adequately, but details such as page references, example numbers, and problem numbers may change from one edition to the next. If you use an earlier version of the textbook, it is your responsibility to check how, if at all, these references have changed.

The following books, available in the High Use Collection Section of the library, may also be useful as alternative references.

Keller, G. (2012), *Statistics for Management and Economics (Abbreviated)*, 9th Edition. South-Western Cengage Learning.

Berenson, M.L. et al. (2010), *Business Statistics*. Pearson Prentice Hall.

7 COURSE SCHEDULE

7.1 Lecture Schedule

Week 1 beginning Monday 27 February: Introduction; frequency distributions and histograms; shapes of distributions; describing bivariate relationships

- Sharpe Chapters 1 and 2

Week 2 beginning Monday 6 March: Measures of central tendency (location); dispersion measures (spread); measures of association; introduction to linear regression

- Sharpe Chapters 3 and 4

Week 3 beginning Monday 13 March: Introduction to probability

- Sharpe Chapter 5

Week 4 beginning Monday 20 March: Random variables; discrete probability distributions; expectations

- Sharpe Chapter 6

Week 5 beginning Monday 27 March: Continuous random variables; the normal distribution; introduction to surveys and sampling

- Sharpe Chapters 7 and 8

Week 6 beginning Monday 3 April: Introduction to estimators and sampling distributions; confidence intervals; introduction to hypothesis testing; tests about the population proportion

- Sharpe Chapters 9 and 10

Week 7 beginning Monday 10 April: Central limit theorem; more on sampling distributions, hypothesis testing, and inference; tests about the population mean; tests when the population variance is unknown

- Sharpe Chapter 11

Mid-semester break: Friday 14 – Sunday 23 April inclusive

Week 8 beginning Monday 24 April (note Tuesday 25 April is a public holiday): More on confidence intervals; errors in hypothesis testing; p-values; power and sample size

- Sharpe Chapter 12

Week 9 beginning Monday 1 May: Chi-squared tests

- Sharpe Chapter 14

Week 10 beginning Monday 8 May: Simple linear regression; the least squares method; basic assumptions; R-squared

- Sharpe Chapter 15

Week 11 beginning Monday 15 May: Inference about the regression line; errors and residuals; introduction to multiple regression

- Sharpe Chapters 16 and 17
- **Project Submission this Week**

Week 12 beginning Monday 22 May: Multiple regression, continued; review

- Sharpe Chapter 18

Week 13 beginning Monday 29 May: NO LECTURES

7.2 Tutorial Schedule

One-hour tutorials start in Week 2 and run weekly through Week 13.

A document providing tutorial problems will be posted weekly on the course website. Suggested answers to tutorial problems will be posted on the website at the end of every week.

Note that Friday 14 April and Tuesday 25 April are public holidays. If you are enrolled in a tutorial or a lecture on either of these days, you should make a special arrangement to attend another tutorial or lecture that week. A list of tutorial and lecture times and locations can be found on the course website.