



# STAT150

## Business Statistics

S2 Day 2017

*Dept of Statistics*

### Contents

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<a href="#"><u>General Information</u></a>	2
<a href="#"><u>Learning Outcomes</u></a>	3
<a href="#"><u>General Assessment Information</u></a>	3
<a href="#"><u>Assessment Tasks</u></a>	3
<a href="#"><u>Delivery and Resources</u></a>	6
<a href="#"><u>Unit Schedule</u></a>	7
<a href="#"><u>Learning and Teaching Activities</u></a>	8
<a href="#"><u>Policies and Procedures</u></a>	9
<a href="#"><u>Graduate Capabilities</u></a>	11
<a href="#"><u>Changes from Previous Offering</u></a>	13
<a href="#"><u>Changes since First Published</u></a>	13

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## General Information

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Credit points

3

Prerequisites

Corequisites

Co-badged status

Unit description

Data is the foundation of sound business decisions. In this unit you will learn the fundamentals of analysing, solving and communicating business problems using quantitative information.

The unit will cover the statistical concepts that provide a foundation for the study of and professional practice in business and economics. The focus will be on tools and approaches that are used every day in business. Problems and examples will be drawn from current real-world experience.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

- organise and summarise data graphically and numerically
- use appropriate techniques to analyse data
- use Excel to manipulate and analyse data
- draw conclusions from the results of data analysis
- apply statistical techniques to problems arising from diverse fields of research

## General Assessment Information

All assessments should be attempted and classes attended. Students who have approved absences from practical and/or tutorial classes are still expected to attend at least 8 out of 12 practical classes and at least 8 out of 13 tutorial classes.

The only excuse for missing a tutorial or practical class, an assessment (Class Test 1 or 2) or the final exam is because of documented illness or unavoidable disruption. In these special circumstances you may apply for Disruption to Studies via [ask.mq.edu.au](http://ask.mq.edu.au).

For approved disruption to class tests, you will be expected to attend the next available test as determined by the convener.

The supplementary exam period for Session 2, 2017 will be the week of December 11 - December 15. If you notify the University of your disruption to studies for your final examination, you must make yourself available for that week. If you are not available at that time, there is no guarantee an additional examination time will be offered. Specific examination dates and times will be determined at a later date.

Note that there is a University policy regarding Disruption to studies which can be found at: [http://students.mq.edu.au/student\\_admin/exams/disruption\\_to\\_studies/](http://students.mq.edu.au/student_admin/exams/disruption_to_studies/).

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Tutorial participation</a>	10%	Yes	Weekly
<a href="#">Practical participation</a>	0%	Yes	Weekly
<a href="#">Class Test 1</a>	15%	No	Week 7 Practical Class

Name	Weighting	Hurdle	Due
<a href="#">Class Test 2</a>	25%	No	Week 12 Practical Class
<a href="#">Final Examination</a>	50%	No	University Examination Period

## Tutorial participation

Due: **Weekly**

Weighting: **10%**

**This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)**

Tutorial participation is a hurdle requirement. Students must participate in at least 8 out of 13 tutorial classes. Tutorial work must be handed to your tutor at the end of the class. Tutorial work from weeks 3,5,7,9 and 12 will be marked and each piece of work is worth 2%. Late submissions will not be accepted.

On successful completion you will be able to:

- organise and summarise data graphically and numerically
- use appropriate techniques to analyse data
- draw conclusions from the results of data analysis
- apply statistical techniques to problems arising from diverse fields of research

## Practical participation

Due: **Weekly**

Weighting: **0%**

**This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)**

Practical participation is a hurdle requirement. Students must participate in at least 8 out of 12 practical classes. Participation will be recorded in class.

On successful completion you will be able to:

- organise and summarise data graphically and numerically
- use appropriate techniques to analyse data
- use Excel to manipulate and analyse data
- apply statistical techniques to problems arising from diverse fields of research

## Class Test 1

Due: **Week 7 Practical Class**

Weighting: **15%**

Class Test 1 will be held in practical classes in week 7. This test must be taken in the practical class in which you are registered. **Students must bring their student ID.** Failure to supply ID will mean exclusion from the test. A standard calculator may be taken into the class test (mobile phones and other devices with calculator apps are not permitted). No other material (apart from writing equipment) will be permitted in the class test. A supplementary class test will be given for students with an approved disruption to studies application.

On successful completion you will be able to:

- organise and summarise data graphically and numerically
- use appropriate techniques to analyse data
- use Excel to manipulate and analyse data
- draw conclusions from the results of data analysis
- apply statistical techniques to problems arising from diverse fields of research

## Class Test 2

Due: **Week 12 Practical Class**

Weighting: **25%**

Class Test 2 will be held in practical classes in week 12. This test must be taken in the practical class in which you are registered. **Students must bring their student ID.** Failure to supply ID will mean exclusion from the test. A standard calculator may be taken into the class test (mobile phones and other devices with calculator apps are not permitted). No other material (apart from writing equipment) will be permitted in the class test. A supplementary class test will be given for students with an approved disruption to studies application.

On successful completion you will be able to:

- organise and summarise data graphically and numerically
- use appropriate techniques to analyse data
- use Excel to manipulate and analyse data
- draw conclusions from the results of data analysis
- apply statistical techniques to problems arising from diverse fields of research

## Final Examination

Due: **University Examination Period**

Weighting: **50%**

The Final Examination will be a two hour written examination (plus ten minutes reading time) and will be held during the examination period which runs from 13 November to 1 December, 2017. A page of formulae will be provided with the final exam. Students will be permitted to take **one A4 sheet (any colour), handwritten on both sides** (using pens and/or pencils and highlighters) into the final examination. This sheet may contain any information deemed useful to the student and must be submitted with the final exam paper at the conclusion of the exam. A standard

calculator may also be taken into the final examination (mobile phones and other devices with calculator apps are not permitted for use in the exam). See the week 13 iLearn area for more details on preparing for the final exam.

The University Examination timetable will be available in draft form approximately eight weeks before the commencement of the examinations and in final form approximately four weeks before the commencement of the examinations at: <http://www.timetables.mq.edu.au/>

Students are advised that it is Macquarie University policy **not** to set early examinations for individuals or groups of students. All students are expected to ensure that they are available until the end of the teaching semester, i.e. the final day of the official examination period.

On successful completion you will be able to:

- organise and summarise data graphically and numerically
- use appropriate techniques to analyse data
- use Excel to manipulate and analyse data
- draw conclusions from the results of data analysis
- apply statistical techniques to problems arising from diverse fields of research

## **Delivery and Resources**

### **Classes**

Students should enrol in **and attend** the following classes each week:

- 1 x 2 hour lecture beginning in Week 1
- 1 x 1 hour tutorial beginning in Week 1
- 1 x 1 hour practical beginning in Week 2

The timetable for classes can be found on the University web site at: <http://www.timetables.mq.edu.au>

Students can change their tutorial and practical classes by using eStudent at: <https://student1.mq.edu.au/>. Do not enrol in clashing classes!

### **Required and Recommended Texts and/or Materials**

- A standard calculator should be brought to all classes.
- Excel 2013 (or a later version) for Microsoft Windows or Excel 2016 for Mac will be used throughout the unit. Students without one of these versions of Excel can download Excel 2016 (or the whole Office suite) from the University. See the University [Wiki page](#) for details. Please see Petra or Anne during Office Hours for help with installation problems, or visit IT help in the C5C building.

Required Text:

- *Business Statistics STAT150: A Custom Edition for Macquarie University* from *Business Statistics 3rd Edition Global Edition* by Sharpe, De Veaux and Velleman (ISBN 9781488616099). This book, with the MyStatLab key, will be used throughout this unit. It can be purchased in hard copy from the Coop Bookshop or directly from Pearson.

**Technology Used and Required**

All course material is delivered through iLearn (which is a version of Moodle). The link may be found at <http://ilearn.mq.edu.au>

## Unit Schedule

WEEK	LECTURE TOPIC	Class Tests, Tutorial Submissions and Revision Quizzes
1	Introduction to statistics	
2	Summarising and displaying data	Online revision quiz 1
3	Summarising and displaying data (continued)	Tutorial work submission
4	Introduction to distributions: the normal distribution	Online revision quiz 2
5	Sampling distributions and confidence intervals for proportions	Tutorial work submission
6	Sampling distributions and confidence intervals for means	
7	One sample hypothesis tests for a population mean	Tutorial work submission Online revision quiz 3 Class Test 1 in practical class
Semester Break		
8	Hypothesis tests for comparing population means	
9	Simple linear regression (Part 1)	Tutorial work submission

10	Simple linear regression (Part 2)	
11	Hypothesis tests for population proportions: z-test of a proportion and chi-squared goodness-of fit test	
12	Chi-squared test of independence	Tutorial work submission Class test 2 in practical class
13	Review of STAT150	Online revision quiz 4

## Learning and Teaching Activities

### Lectures

Lectures begin in Week 1. Students should attend one 2-hour session per week. Copies of the lecture slides will be made available via iLearn. Students are strongly advised to print out the lecture slides and bring these printout to lectures so that they can work through the material thoroughly. The lectures are also recorded via 'echo360', and can be accessed on iLearn (under Echo Recordings). Any student who misses a lecture must work through the Echo recording before he/she will be able to progress to the next lecture.

### Tutorials

Tutorials begin in Week 1. Each tutorial is based on work from the previous week's lecture. The aim of tutorials is to practise techniques and understand concepts learned in lectures. Tutorials are designed for students to work together in groups. The emphasis on group work is to explore ideas, devise and ask questions and plan ways to answer them. Tutorial material will be made available via iLearn. Students should print out their tutorial material and bring the printout to their tutorial class each week. Exercises in Weeks 3, 5, 7, 9 and 12 will be marked.

### Practicals

Practical classes begin in Week 2. Every week throughout the semester students will be required to work through practical material that teaches them how to apply the statistical techniques learned during lectures and tutorials by using Excel 13. The weekly practical material is based on work from the previous week's lecture. Practical material, and the required Excel datasets, will be made available via iLearn. Students should print out their practical material (available on iLearn) and bring it to their practical session each week. Students preferring to use their own computers to do the practical work are encouraged to do so.

### Online Revision Quizzes: Weeks 2, 4, 7 and 13

Four online quizzes will be available for revision purposes. These quizzes do not count towards final assessment marks. The quizzes are designed to give students an opportunity to practice theoretical, mechanical and interpretational aspects of statistics. The first quiz, should be attempted in Week 2. It is designed to assess students' ability to cope with the mathematical



content of STAT150. The other quizzes, which should be attempted in Weeks 4, 7 and 13 are designed to help students revise and reinforce the concepts covered in lectures, tutorials and practicals, and to help students prepare for class tests and the final exam. Students are allowed an unlimited number of attempts at each test. Each test will open approximately two weeks before its scheduled time. Each time a student attempts a test, a new version of it will be generated. Students who have problems with quiz questions are encouraged to seek help during staff consultation hours, or from the Numeracy Centre.

## Help with STAT150 related administrative matters

For help with STAT150 related administrative matters (such as class enrolment) students should email: [stat150.admin@mq.edu.au](mailto:stat150.admin@mq.edu.au)

## Staff consultation (office) hours

Members of the Statistics Department have consultation hours each week when they are available to help students enrolled in Introductory Statistics. These consultation hours are available both on iLearn and on the Statistics Department website. You do not need to make appointments at these times. Just come to the office of whichever staff member is available at that time. The Statistics department is located on levels 5 and 6 of 12 Wally's Walk.

## Numeracy Centre

The Numeracy Centre exists to help students who are experiencing difficulties with numeracy-based subjects such as STAT150. Any student who lacks the knowledge of mathematics needed for STAT150 is encouraged to seek the help of the Centre, which is located in C5A 225. The Centre offers a number of services including individual help, supplementary workshops that run each week and an opportunity to meet with other students to discuss problems. STAT150 assumes knowledge of high school mathematics. Anyone without this knowledge should take a mathematics unit prior to enrolling in STAT150.

## Computing Laboratories

Excel 13 will be used in practical sessions. Computing labs use iLab, so work undertaken must be saved to the iLab desktop and then emailed. Opening hours of computing laboratories during semester: 8am - 10pm Mon-Fri 9am - 5pm Sat-Sun For opening hours during semester breaks, see the notice boards outside the computing laboratories. Look for additional information on the whiteboards in the labs. Please note that computing labs may be booked for classes. Check the timetable on the door of the lab to make sure that the room is free.

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy [http://mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://mq.edu.au/policy/docs/academic_honesty/policy.html)

Assessment Policy [http://mq.edu.au/policy/docs/assessment/policy\\_2016.html](http://mq.edu.au/policy/docs/assessment/policy_2016.html)

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Complaint Management Procedure for Students and Members of the Public [http://www.mq.edu.au/policy/docs/complaint\\_management/procedure.html](http://www.mq.edu.au/policy/docs/complaint_management/procedure.html)

Disruption to Studies Policy (in effect until Dec 4th, 2017): [http://www.mq.edu.au/policy/docs/disruption\\_studies/policy.html](http://www.mq.edu.au/policy/docs/disruption_studies/policy.html)

Special Consideration Policy (in effect from Dec 4th, 2017): <https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration>

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: [https://students.mq.edu.au/support/student\\_conduct/](https://students.mq.edu.au/support/student_conduct/)

## Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au).

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## Learning Skills

Learning Skills ([mq.edu.au/learningskills](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

## Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

## Graduate Capabilities

### Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

#### Learning outcomes

- organise and summarise data graphically and numerically
- use appropriate techniques to analyse data
- use Excel to manipulate and analyse data
- draw conclusions from the results of data analysis
- apply statistical techniques to problems arising from diverse fields of research

#### Assessment tasks

- Tutorial participation
- Practical participation
- Class Test 1
- Class Test 2
- Final Examination

### Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

#### Learning outcomes

- use appropriate techniques to analyse data
- use Excel to manipulate and analyse data

- draw conclusions from the results of data analysis
- apply statistical techniques to problems arising from diverse fields of research

## **Assessment tasks**

- Tutorial participation
- Practical participation
- Class Test 1
- Class Test 2
- Final Examination

## **Problem Solving and Research Capability**

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

## **Learning outcomes**

- use appropriate techniques to analyse data
- use Excel to manipulate and analyse data
- draw conclusions from the results of data analysis
- apply statistical techniques to problems arising from diverse fields of research

## **Assessment tasks**

- Tutorial participation
- Practical participation
- Class Test 1
- Class Test 2
- Final Examination

## **Effective Communication**

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

## Learning outcomes

- organise and summarise data graphically and numerically
- apply statistical techniques to problems arising from diverse fields of research

## Assessment tasks

- Tutorial participation
- Practical participation
- Class Test 1
- Class Test 2
- Final Examination

## Changes from Previous Offering

There have been changes to the assessment structure and weightings.

## Changes since First Published

Date	Description
26/07/2017	Dates for tutorial submission in unit schedule were not correct.