STAT150

Business Statistics

S1 Evening 2018

Dept of Statistics

Contents

General Information

Unit convenor and teaching staff
Convener/ Lecturer
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Lecturer
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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

demonstrate foundational learning skills including active engagement in their learning process

General Assessment Information

You must attend and participate in at least 10 of the 13 weekly tutorials and 10 of the 12 weekly practical classes to pass this unit. This is a hurdle requirement. You must also complete and pass all of the Hurdle Quizzes by the due dates. This is a hurdle requirement.

The only excuse for missing a tutorial or practical class, an in class test (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 special consideration. For approved special considerations to class tests, you will be expected to attend the next available test as determined by the convener. There is no excuse for missing a Hurdle Quiz; they are open for at least two weeks each.

If you receive special consideration for the final exam, a supplementary exam will be scheduled in the interval between the regular exam period and the start of the next session. By making a special consideration application for the final exam you are declaring yourself available for a resit during the supplementary examination period and will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. You can check the supplementary exam information page on FSE101 in iLearn (bit.ly/FSESupp) for dates, and approved applicants will receive an individual notification one week prior to the exam with the exact date and time of their supplementary examination.

Assessment Tasks

Name	Weighting	Hurdle	Due
Tutorial participation	0%	Yes	Weekly
Practical participation	0%	Yes	Weekly
5 Hurdle quizzes	10%	Yes	Week 2, 4, 6, 10 and 13.
Class Test 1	15%	No	Week 7 Practical Class
Class Test 2	25%	No	Week 12 Practical Class
Final Examination	50%	No	University Examination Period

Tutorial participation

Due: **Weekly**
Weighting: **0%**

This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

You must attend and participate in at least 10 of the 13 weekly tutorial classes to pass this unit. This is a hurdle requirement. Participation will be recorded via iLearn so you will need a mobile device. If you do not bring a mobile device you must tell your tutor **on the day of your tutorial**. Late notification of attendance will not be accepted. You must attend the class that you are registered into.

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
- demonstrate foundational learning skills including active engagement in their learning process

Practical participation

Due: **Weekly**
Weighting: **0%**
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

You must attend and participate in at least 10 of the 12 weekly practical classes to pass this unit. This is a hurdle requirement. Participation will be recorded via iLearn during your class. You must attend the class that you are registered into.

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
- demonstrate foundational learning skills including active engagement in their learning process

5 Hurdle quizzes

Due: **Week 2, 4, 6, 10 and 13.**
Weighting: **10%**
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

The Hurdle Quizzes are compulsory online quizzes that will be made available on iLearn at least

two weeks prior to the due dates (Fridays 11.59pm in the relevant weeks). Students are allowed an unlimited number of attempts to complete each test until the deadline. The required pass mark is indicated on each hurdle test. Inability to pass a test without help indicates that students should visit the lecturer in their consultation hours. The highest score obtained will count towards the final grade. Each test is worth 2%. Extensions will not be given. Completion and passing of all Hurdle Quizzes is a hurdle requirement.

On successful completion you will be able to:
- 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
- demonstrate foundational learning skills including active engagement in their learning process

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:
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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 12th June to 29th June, 2018. 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
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- apply statistical techniques to problems arising from diverse fields of research

Delivery and Resources

Classes

Students should enrol in the following classes each week:

- 1 x 2 hour lecture beginning in Week 1 (attend either in-person if enrolled into a class or via the live lecture if enrolled in the live stream)
- 1 x 1 hour tutorial beginning in Week 1. Attendance and participation is compulsory!
- 1 x 1 hour practical beginning in Week 2. Attendance and participation is compulsory!

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! You must notify the convener if you change your class enrolment so that your class is changed in iLearn.**

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.

Recommended Text:

- *Business Statistics STAT150: A Custom Edition for Macquarie University* (ISBN 9781488616099). Note that this is a subset of the chapters in *Business Statistics 3rd Edition Global Edition* by Sharpe, De Veaux and Velleman . 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. An e-book with MyStatLab is also available (ISBN 9781488687617). The week 1 area of iLearn includes information on how to register into MyStatLab. The MyStatLab course ID for this semester is graham26933.

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	Assessments
1	Introduction to statistics	

2	Summarising and displaying data	Hurdle Quiz 1
3	Summarising and displaying data (continued)	
4	Introduction to distributions: the normal distribution	Hurdle Quiz 2
5	Sampling distributions and confidence intervals for proportions	
6	Sampling distributions and confidence intervals for means	Hurdle Quiz 3
7	One sample hypothesis tests for a population mean	Class Test 1 (in practical class)
Semester Break		
8	Hypothesis tests for comparing population means	
9	Simple linear regression (Part 1)	
10	Simple linear regression (Part 2)	Hurdle Quiz 4
11	Hypothesis tests for population proportions: z-test of a proportion and chi-squared goodness-of-fit test	
12	Chi-squared test of independence	Class test 2 (in practical class)
13	Review of STAT150	Hurdle Quiz 5

Learning and Teaching Activities

Lectures

Lectures begin in Week 1. Students should attend one 2-hour session per week if enrolled in the lecture or watch the live-stream if enrolled in the Live Stream option. Copies of the lecture slides will be made available via iLearn. Students are strongly advised to print out the lecture slides and answer questions on the slides during the lecture. 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. Except in week 1, each tutorial is based on work from the previous week's lecture. The aim of tutorials is to practice 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. Tutorial attendance and participation is a hurdle requirement.

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 provided they have installed a suitable version of Excel. Practical attendance and participation is a hurdle requirement.

Hurdle Quizzes: Weeks 2, 4, 6, 10 and 13

Five compulsory quizzes must be completed. The quizzes are designed to give students an opportunity to practice theoretical, mechanical and interpretational aspects of statistics. The first quiz is designed to assess students' ability to cope with the mathematical content of STAT150. The other quizzes 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 due date. Each time a student attempts a test, a new version of it will be generated. Students who have problems with quiz questions should seek help during staff consultation hours, or from the Numeracy Centre. Passing these Quizzes is a hurdle requirement.

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

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 (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy *(**Note:** The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

Undergraduate students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/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.

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) 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

IT Help

For help with University computer systems and technology, visit 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

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships

with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcome

- demonstrate foundational learning skills including active engagement in their learning process

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.

Changes since First Published

Date	Description
26/02/2018	Update to office hours